

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 47, No. 11

NOVEMBER 1979

FEATURED IN THIS ISSUE:

- ★ DIAMOND JUBILEE OF THE S.A. DIVISION
- ★ SUNSPOTS, DX AND GETTING AMONGST IT
- ★ WHAT'S LEFT FOR THE NOVICE
- ★ REPEATER TIMER TIMER
- ★ 1979/80 ROSS HULL MEMORIAL CONTEST RULES

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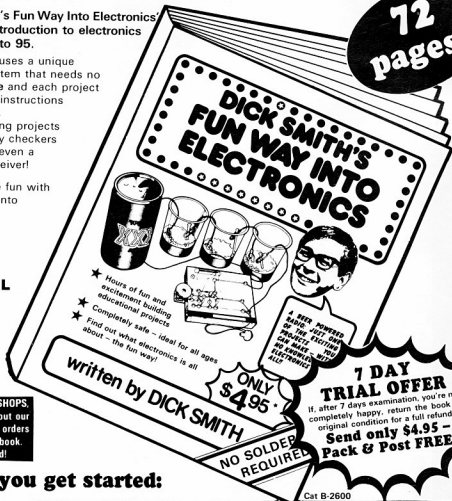
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NOVEMBER 1979

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Cover Photo STILL GOING STRONG!

Eric Bierre VK2BEK at his amateur station, is in his 80th year and has been been licensed since 1924. Eric describes his first rig as a receiver with regenerative detector and two audio stages.

The transmitter was a 210A valve with a Ford coil supplying plate voltage. This created ICW and also bad QRM locally.

He was told to stop using this until he could provide filtered DC for the plate supply. This was smartly done using a dynamotor run from a 6 V battery and supplying 500V DC. He could then transmit for an hour and then charge the battery for the next 23 hours. The aerial was the last word in those days — an 8 inch cage and a counterpoise.

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QSP —

It is fitting that this QSP should come from South Australia, as it was on 5th November, 1919, that the first General Meeting of the South Australian Division, at which a constitution was adopted and office bearers elected, was held. Thus this month the VK5 Division celebrates its Diamond Jubilee. The first meeting at which interim office bearers were appointed had been held earlier in the year on 10th September, 1919.

Ever since, the members of the Division have had their rights protected by the constitution and have been able to have their say by voting on any and all matters affecting the running and representation of their organisation. I believe that all of the Divisions within the Wireless Institute of Australia have followed a similar path.

In later years with the formation of the Federal organisation the same democratic process has been followed right through from Divisional level to the Federal level and the policy making Federal Conventions.

It has often been said that for a group of people who are supposed to be communicators are sometimes not very good at communicating.

To communicate anything, several functions must be carried out. Firstly, develop an idea. Secondly, find someone to transmit the idea to. Thirdly, the person receiving MUST LISTEN.

By listening one can become informed, but herein lies the crux of the matter. If the original idea or statement is incorrect in fact, the person listening will therefore become ill-informed. As in radio if the receiver adds distortion the true and correct message is not received. If the original idea is not quite right the person listening can act as a HISTORY, your legacy; Democracy, your privilege, CONTRIBUTIONS, your responsibility filter, provide feedback, either positive or negative, make a conversion process etc., thus improving the "signal" which may then be transmitted far and wide.

(continued page 5)

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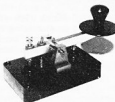
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When you think about it, isn't this the mechanism of the democratic process the WIA follows? By debate at meetings, suggestions, action of committees, we develop a line of approach hopefully producing in the final analysis a result for the betterment of amateur radio and your organisation.

One thing you do know and that is "that if there is no input you will get no output."

One of the most important aspects of these functions as regards the WIA, is the fact that, like it or not, for member and non-member alike, the Institute is recognised by the authorities as the only official spokesman for amateur radio in this country.

So, let's all be transmitters and provide an input. Also act as receivers and become informed. Filter out un-informed information, don't take notice of divisive and distorted views. Distortion is one thing to be well rid of. Use the democratic process, proven by tradition and time, which is open to you. It is in your own interests to support your hobby and your organisation in this way.

The oldest amateur radio organisation in the world with proud traditions can only retain its pride and effectiveness through YOU, the member. Make sure that you can be proud of your contribution to YOUR hobby and YOUR organisation. Contribution is YOUR responsibility.

Help provide a united front for amateur radio.

To use an old and traditional cliché: "In unity lies strength".

IAN HUNT VK5QX,
Divisional President of SA Division.

QSP

EXHIBITION OF APPARATUS

According to a publicity release the Fair Association of Vincenza in collaboration with the ARI (Italian Association of Radio Amateurs) is arranging an exhibition, including components and amateur radio equipment, in Vincenza from 8th to 10th December. The exhibits also include microwave processor systems and various industrial equipment and will provide a meeting place for everybody to exchange ideas, comparisons and experiences.

IVC

1979, the International Year of the Child. A brochure asks "What can you do?", and then goes on to list examples of what can be done. Most of these look rather familiar in the context of amateur radio activities year in and year out as an ongoing commitment. One has only to think of dedicated amateurs instructing the young in Youth Radio schemes these many years, JOTA and other activities involving amateurs locally, not forgetting the international aspects of this first class leisure activities.

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WIANEWS

TV CHANNEL 5A

The following is the text of a letter dated 20th September received by the Federal President from Mr. A. A. Staley, Minister for Post and Telecommunications —

"On the 27 March 1979 you forwarded to me a copy of your Report on Increasing Usage of Television Channel 5A. The Secretary of your Institute (Mr. P. B. Dodd) has also sent me copies of attachments to the report.

I have already advised you that I agreed that there should be no further allocations of Channel 5A until a detailed report is prepared following WARC 79. The question of allocations already made, but where the stations concerned are not yet in service, is still being studied.

I have read your report with interest and it is being carefully studied at present by my Department. However, the questions raised are complex and it will be some time before detailed comments can be produced. You will realise the extreme difficulties involved, both from a financial and timetable viewpoint, in changing the channel of projects that are already well advanced. It is to be expected therefore that a significant number of 5A stations will still come into operation over the next 12-18 months."

The final paragraph is considered to be of sufficient importance to require clarification, particularly relating to the meaning of "5A stations".

Readers may wish to refer to the Press Release published in June AR.

HANDBOOK

Since publication of the statement on page 31 of September AR a copy of the latest draft of the Handbook has now arrived. This could in fact be the proof for the final printed copy.

The new draft includes a great number of appendices which incorporate the syllabus for the AOCIP and Novice theory examinations, 50 sample multi-choice questions for each, 30 sample multi-choice questions on Section "K" (Regulations), the contents of various forms such as the RB125 and RB125A, an update of the pamphlet about good radio and TV reception and other data.

Readers are reminded that the details in any such Handbook cannot conflict with the WT Regulations. The Handbook is merely an interpretation of these Regulations.

The chapter on definitions has been expanded. In general, any new definitions follow the broad ITU equivalents — such as "harmful interference", "occupied bandwidth", "spurious emissions" — whilst others include "operator", "repeater/translator station", "session", "simplex operation", "slow scan television", "television", "third party", "beacon station", "club station", etc. A few definitions have been expanded or clarified, as for example —

"'Mobile station' means a station in the amateur service that is installed in a vehicle, aircraft, ship or any other means of transport and is normally used while the vehicle, aircraft, ship or any other means of transport is in motion, or during halts at unspecified locations. A station carried by a pedestrian is included in the above definition, but see also 42(b) below."
see also 4.2 (b) below."

It is manifestly impossible to isolate all the various differences between the existing and the proposed Handbooks in the space available here. The "statement" referred to covers many of the main differences.

Identification has been increased from 5 to 10 minutes. RTTY (and similar) stations will have to identify in the mode in use as

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well as CW or telephony. Details and parameters are set down for automatic radio telegraph systems, facsimile, repeaters, beacons, television and SSTV as well as duplex working, maritime mobile operations, aeronautical mobile and also emergency working. The operation of club stations has been more closely defined and details about reciprocal licensing have been spelt out in greater depth.

Paragraph 29 in the existing Handbook has been expanded as follows—

"4.2 As a general rule an amateur station licence authorises the operation of an amateur transmitting and receiving station:

- at a fixed location detailed in the licence;
- at any temporary premises or any temporary location, including a vehicle which is normally garaged at the fixed location detailed in the licence, for periods of up to four consecutive weeks in any one instance. Approval to operate from temporary locations for periods in excess of four weeks may be obtained on written application to the Superintendent, Regulatory and Licensing in the capital city of the State in which it is intended to establish the station . . ."

It seems obvious that the new Handbook does not come into operation until it has been published and distributed.

Much discussion has been held with the Department about highly specialised items which the WIA believes should not be subject to examination—one example is the repeater conditions.

REPEATERS

And on the subject of repeaters it is understood that the Depart-

ment has agreed in principle to the licensing of a 6 metre repeater on trial in VK6—please see AR for July, page 6.

EDUCATION MATERIAL

During discussions in Adelaide the Federal Education Co-ordinator initiated the production of various kinds of visual aids for training purposes. A number of Divisions have been asked to assist in this work.

MEETINGS

At the Executive meeting on 6th September a lengthy discussion was held on the question of the Federal dues for 1980. It had originally been hoped that at the 1979 Federal Convention these would remain unchanged for the fourth year in succession but from the latest data and inflationary trends prudence dictated that a small increase was essential if the budget is not to go into deficit. A modest increase of \$1.50 (from \$15.00 to \$16.50) on all non-concessionary members has been approved.

1979 CALL BOOK

Sales of the Call Book have been going well. To avoid disappointment members should order now before stocks run out.

WARC 79

WARC 79 has begun. The Executive wishes to acknowledge with grateful thanks the receipt of the following donations from members—

LIST No. 7

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THE DIAMOND JUBILEE OF THE SOUTH AUSTRALIAN DIVISION OF THE INSTITUTE

Ian Hunt VK5QX
8 Dexter Dr., Salisbury East 5109

The Wireless Institute of Australia holds the proud position of being the oldest amateur radio society in the world, having been formed before such other well known organisations such as the Radio Society of Great Britain and the American Radio Relay League.

I thought you may be interested to know a little about the formation of the South Australian Division of the Institute which this year celebrates its sixtieth year of operation.

Mr. C. E. Ames, who became the first secretary of the Division, fortunately had the foresight in his time to prepare an account entitled *How the South Australian Division of the Wireless Institute of Australia came to be formed*. This document, together with the original Minute Book of the Division, have luckily escaped the ravages of time and, still in fair condition, are held by the Divisional Historian, Maurice Phillips VK5ZU. The Council of the Division are taking steps to ensure preservation of these documents for posterity.

Access to these documents therefore allows me to provide you with the following information, some of it taken directly from the account by Mr. Ames who, in the year 1914 as a licensed experimenter, held the call sign of XVG.

I now quote directly from that account:—

All pre-war radio experimenters will remember that simultaneously with the outbreak of war came notices that all wireless gear was to be dismantled, packed in cases and handed in to the nearest official Post Office. At the cessation of hostilities in 1919, notice was received that our apparatus would be returned to us on application to the postmaster at the office to which it had been delivered in 1914. The same notice made it clear that restrictions on the use of such apparatus still remained in force, and that a continuance of the prohibition against all private wireless experiments must be rigidly observed in accordance with the War Precaution Regulations.

This, with hints thrown out by the press, made it appear that we experimenters were going to have a hard fight to obtain anything like our pre-war freedom, and I began to realise that if we could organise the experimenters, and others interested in wireless development, into a solid body, that we would then be in a position to press our claims.

I well remember passing down a certain street in Mile End, one day on my way home from work, and seeing an aerial

which had been erected, and on making enquiries at the house found that it belonged to Mr. Malpas, with whom I had become acquainted in pre-war days as a wireless operator. I mentioned to Mr. Malpas my idea of forming a Wireless Institute in this State and he was very enthusiastic about it and encouraged me to go ahead with it. Mr. Malpas was the first person to whom I mentioned the idea of forming the Wireless Institute of South Australia.

I then got in touch with Mr. Malcolm Perry, who was at that time Secretary of the Wireless Institute of New South Wales, and acquainted him with my ideas, at the same time pointing out the advantages that would undoubtedly be obtained by the amalgamation of the Wireless Institutes in the various States, and bringing them together as the Wireless Institute of Australia.

I received much encouragement from Mr. Perry and on the 4th April, 1919, at the annual meeting of the Wireless Institute of New South Wales I became a member of that body.

I then caused advertisements to be inserted in the various newspapers in Adelaide calling attention to the desire to form a Wireless Institute in this State, and also wrote to all the pre-war experimenters with whom I could get in touch and received a very encouraging reply from Mr. Hamby Clark, who afterwards became our President.

As a result of advertisements I became acquainted with Mr. Adam Mather, who proved a great help in gathering in members.

The result was that on 10th September, 1919, a meeting was held at my house at Carlton Parade, Torrens, at which the formation of the Institute to be known as the South Australian Section of the Wireless Institute of Australia was endorsed and a committee was formed, with the object of drawing up a code of rules, comprised of the following members. President, A. Mather; Vice-Presidents, Ralph Lee and Hamby Clark; and Messrs. W. H. Smith, D. G. Malpas, H. C. Coles, R. M. Dunstone, R. Wyatt, C. J. Poole and C. E. Ames, Secretary.

It was decided to adopt the rules of the NSW Section until our own new constitution could be drawn up and adopted. The annual subscription was fixed at 10 shillings and sixpence per year.

Present at that meeting were the following, who all became members of this Section: Messrs. A. Mather, R. L. Lee, D. G. Malpas, D. A. Smith, W. J. Bland, H. C.

Coles, R. O. Wyatt, C. J. Poole, J. M. Honnor and C. E. Ames. Absent members elected were Messrs. R. M. Dunstone, A. B. Cox, W. Jenkinson, C. J. Spencer and C. Barlow.

A second meeting was held at Carlton Parade, Torrens, on the 24th September, at which six new members, namely Messrs. T. M. Heagney, R. O. B. Matthews, B. M. Brimage, J. W. Wilkin, J. R. Finlayson and A. G. S. Paine, were elected.

On the 15th October the Council met at the office of Mr. R. O. C. Matthews, Grenfell Street, Adelaide, for the purpose of drafting a set of rules. This was done and at a general meeting called as the first Annual Meeting on the 5th November at the office of Mr. R. M. Dunstone, Alfred Chambers, Currie Street, this new constitution was adopted. An election took place and the following officers were elected: President, J. W. Hamby Clark; Vice-Presidents, T. H. Heagney and R. L. Lee; Hon. Secretary, C. E. Ames; Hon. Treasurer, R. O. C. Matthews; Council, W. H. Smith, W. Harrison, R. M. Dunstone, D. G. Malpas, H. C. Coles, V. R. Cooke.

The document written by Mr. Ames is in a most even hand and typical of the old copperplate handwriting which is rarely seen these days. Examples of such writing from the original minute book are reproduced with this article.

It is interesting to note that the Mr. V. R. Cooke mentioned as an elected member of the first Council of the Division is still alive and is an active amateur under the call sign of VK5AC. Roy can be heard most Sunday mornings participating in the 20 metre call-back after the Sunday morning broadcast.

Two interesting snippets from the minute book are the fact that the annual subscription of ten shillings and sixpence, known in those days as "half a guinea", could be paid in two instalments and that very early in the days of the Division it was decided that lady members could not be admitted to the Division.

The Mr. Hamby Clark mentioned as being the first President of the Division was the father of the well known Adelaide identity of the same name who runs a gun dealership in the city.

An excellent book entitled "A History of Radio in South Australia 1897-1977", written by John F. Ross Fiere (Aust.), was published last year and includes as the second chapter a total of 66 pages devoted to the history of the South Australian Division and amateur radio

minutes of Meeting held on the 5th November.

2nd Special.

The minutes of the previous meeting were read & confirmed. Mr. Matthews proposed that the words "at their own discretion" appearing in the minute referring to the position of the Auditing account by the Hon. Secretary & Hon. Treasurer, be deleted. Mr. Hargray seconded. Carried.

Correspondence:

1:- Resignation of Mr. Matthews from the position of President of the Provisional Committee & as a member of the Wireless Institute be accepted without comment. Proposed by Mr. Matthews. & seconded by Mr. Hargray. Carried.

2:- A letter from the Wireless School of Wireless was received.

3:- Letters were read from the Wireless Institute of A.P.N. & Co. in reply to a request by this Institute to be informed as to what action was being taken with reference to the admitting of lady members to the Institute.

Mr. Matthews proposed that the Secretary be instructed to write Mrs. Rogers, that the Institute

The following office bearers were elected to office:- President:- Mr. Hambley Clark.

Proposed by Mr. Matthews
seconded by Mr. Hargray.

Hon. Secretary:- Mr. Jones

Proposed by Mr. Barlow.
seconded by Mr. Smith.

Hon. Treasurer:- Mr. Matthews

Proposed by Mr. Hargray.
seconded by Mr. Eland.

Vice Presidents:- Mr. Hargray.

Proposed by Mr. Jones.
seconded by Mr. Eland.

Mr. Lee.

Proposed by Mr. Hargray.
seconded by Mr. Eland.

Committee:-

(1) Mr. Smith.

Proposed by Mr. Matthews.
seconded by Mr. Williamson.

(2) Mr. Harrison.

Proposed by Mr. Hargray.
seconded by Mr. Eland.

ABOVE and BELOW: Photographs of Mr. C. E. Ames' handwritten minutes of the WIA SA Division 60 years ago.

operators and contains some of the information given above.

To press forward to later history of the Division, it is noted that in the year 1922 there were 58 financial members on the roll. That compares with a figure of about 1,000 in the year 1979.

Amongst the members listed in that year was a Mr. Robert T. Edgar, who was born in Scotland, educated in Australia, and eventually became an American citizen. His father, the late Robert Edgar, invented several important parts of the great 200 inch Hale telescope on Mt. Palomar, California. Mr. Edgar, Jr., acted as Honorary Assistant Secretary for the Division and went on to become involved in presenting lectures dealing with space exploration, having previously made predictions about such things as ICBMs, artificial satellites, manned space stations, etc., at which predictions people scoffed. In a brochure in my possession appears the following: Mr. Edgar, be sure to keep up this good work of inspiring our youth, said Dr. Werner Von Braun, world famous rocket expert. At the present time Mr. R. (Bob) Edgar, another member of the same family, is employed as a research scientist at the Defence Research Centre, Salis-

First Provisional Meeting Sept 10th 1919.
A meeting of Wireless Enthusiasts & Enthusiasts was held on Sunday evening Sept 10th at the residence of Mr. A. L. Jones at 27, Station Parade, Melbourne, for the purpose of establishing in the State of South Australia a branch of the Wireless Institute of Australia. Every day very rough weather the attendance was not what it should have been, but however the meeting was carried on successfully under the able chairmanship of Mr. Matthews. Mr. Jones was proposed for the position of Honorary Secretary of the Institute, seconded by Mr. Hargray, & was elected unopposed. The meeting was continued until he should also carry out the duties of Treasurer and such time as the growth of the Institute should warrant the election of a separate Treasurer.

Chairman of President.
Mr. Matthews was proposed by Mr. Hargray seconded by Mr. Lee.

bury, South Australia, and holds the call sign VK5RS. Bob has in the past several years had working under his guidance Ron VK5FY, Angus VK5DE, Rick VK5GV, Ian VK5QX, Clive VK5PE, Fred VK5FT, and several other present amateur operators whose names and call signs at the moment

I cannot recall, all involved on various scientific projects. So still we can see some possible links with past history of the Division.

So sixty years after its foundation the South Australian Division of the Wireless Institute of Australia is alive and well. Membership is still growing steadily, as is also the case with the organisation on a national basis.

From the beginning described above, with hints made as far back as the year 1919 about the possibility of a Federal body, has grown the organisation which we know today. It would seem that our present-day members are no less enthusiastic than the early experimenters of yesteryear.

We have an organisation with history, tradition and activities of which we can justly be proud.

I am sure that you will wish to celebrate this Diamond Jubilee with the members of the South Australian Division and that all Divisional members would like to have expressed on this special occasion their greetings to all other members of the Wireless Institute, and all other amateurs throughout the world.

I trust that this description of events over the years concerning the operation of our hobby in the State of South Australia has been of interest to you. ■

SUNSPOTS, DX AND GETTING AMONGST IT

Ken McCracken VK2CAX

Amateur radio thrives on unreliability. The VHF fraternity, the DX hounds, and even the dyed in the wool earbasher get much of their enjoyment through exploiting freak conditions. And every single variability in propagation conditions is attributable to our Sun. This article shows how.

INTRODUCTION

Strangely enough, the two most important features of the sun, insofar as the amateur is concerned, is that it is large (diameter approximately one million km) and that it rotates. Consequently it has a strong magnetic field. Instabilities in this field cause waves to travel up through the solar atmosphere and heat the corona to a high temperature (approximately one million degrees centigrade). A gas at this temperature emits X-rays which create our ionosphere by ionizing the upper layers of the earth's atmosphere. The X-ray emission rate varies from day to day, from year to year, and consequently radio conditions vary in sympathy.

Occasionally an extremely large instability occurs in the solar magnetic field near a sunspot, and an immense amount of energy is released into a volume about as big as the earth. This results in a magnificent explosion; we call it a solar flare. A burst of X-rays hits the earth 9 minutes later; a magnetic storm occurs about 24 hours later and the Van Allen radiation belts are severely disturbed. Each of these events affects radio propagation to a large degree.

The VHF man also must thank the sun for heating our atmosphere, thereby creating the weather patterns and high altitude winds he needs for tropospheric and sporadic-E propagation.

Finally, a little bit of radio archeology. Historical records of the sun indicate to us that Captain Cook probably would have been able to work London on 52 MHz if Hertz and Marconi had come along a little earlier. The next such occurrence should be about 2126 AD.

The amateur operator is well aware of, and in many cases thrives on, the variability of radio propagation conditions. Daily, monthly, seasonal, and year to year variations are clearly recognised. The year

to year variability is well known to correlate with the "Sunspot number", and from this our ionospheric predictions are derived. But we see a sunspot because it is cooler than the rest of the sun; why should the earth's ionosphere get denser as the number of cool spots on the sun increases? Clearly, there is a lot more physics here than meets the casual eye.

In fact, the sun is totally responsible for our ability to communicate via the ionosphere, and every type of variation in radio propagation is attributable to the sun. This article seeks to outline the complex interplay of seemingly unrelated factors that brings this about.

HEATING AND STIRRING

Our sun (an average star) commenced its life as a small condensation of cold dust and gas in interstellar space. This condensation exerted a gravitational attraction on nearby dust and gas which "fell" into the condensation, increasing its mass, thereby increasing its gravitational field and thereby "sucking" in more dust and gas. Thus, it grew bigger and bigger.

As an atom fell towards the infant sun the gravitational force caused it to speed up; then it hit the infant sun, its kinetic energy heated the sun up very slightly. Each new atom increased both the mass and the temperature of the sun. Ultimately the centre of the infant sun reached a temperature of 10 million degrees, then "nuclear fusion" commenced. In this process four hydrogen atoms unite to form a helium atom, releasing a great amount of heat in the process. The sun had been "lit", and it was henceforth able to maintain its temperature from its internal resources.

As water goes down the bath hole, it rotates faster and faster the closer it gets to the hole. The same laws of physics affected our infant sun, so that the gas as it fell into the sun swirled around with

increasing speed. The lazy motions of the dust and gas prior to the condensation of the sun resulted in a star that was spinning about its axis. The sun now spins about its axis with a period of 25 days. Strangely enough this spinning motion is crucial to the HF operator. If the sun did not spin, there would be no ionosphere! Let's see why.

Gases at 10 million degrees are excellent conductors of electricity; and the infant sun therefore became an immense (about 1 million kilometres in diameter), rotating electrical conductor. A weak magnetic field pervades space, and, as in the case of an electric dynamo, electric currents started to flow in the moving conductor (the sun). These currents in turn generated magnetic fields of their own, which generated further eddy currents. Positive feedback occurred, and ultimately strong magnetic fields were built up inside the sun. The continued rotation of the sun prevents these fields from decaying. Unlike the magnetic field of the earth, the majority of the sun's magnetic field is inside the sun; that is, the majority of the lines of force never emerge from the surface.

SPOTS AND KNOTS

The sun is completely gaseous, and some parts therefore can rotate faster than others. The magnetic fields become especially strong at the interface between such regions, and big kinks and knots are also formed in the magnetic field lines. The regions of strong magnetic field contain less gas than adjacent regions, and they therefore "float" to the surface of the sun, taking the magnetic field with them. Such an occurrence is illustrated in Figure 1. This protrusion of the magnetic field through the surface of the sun is the most important single feature of a sunspot.

The light our eyes see from the sun originates in a layer called the photosphere, where the average temperature is 6000°C. The sunspot magnetic field causes

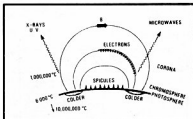


FIGURE 1: The important components of sunspot group. The two sunspots may be up to 100,000 km apart.

the gas in the sunspot (i.e. where the field is strongest) to expand and cool down. The gas is therefore less incandescent, and we see a dark spot. (As is obvious from Figure 1, we usually see sunspots in pairs, one having a "North" magnetic polarity, the other "South"). These dark spots, themselves, have no effect whatsoever on our ionosphere.

Other effects are occurring that we cannot see with our eyes, however, the hot gas below the photosphere rises, setting up convection cells similar to the thunderheads that occur in our atmosphere on hot summer days. The hot, convecting gas causes the magnetic lines of force to vibrate, and powerful waves ("magneto-hydrodynamic waves") propagate away from the sun. They carry much energy with them, which is then dissipated in the region up to several million kilometres above the photosphere. The dissipation of these waves heats the gas to very high temperatures of about 1 million degrees.

All hot bodies radiate electromagnetic radiation, the wavelength decreasing with increasing temperatures. Thus, while the 6000°C photosphere radiates optical wavelengths, the million degree corona radiates X-rays and ultraviolet radiation. It is this radiation that generates our ionosphere, and it is the variation in the number and temperature of the coronal "hot spots" over the sunspots that makes the ionosphere wax and wane.

Other things are happening in the sunspot magnetic field as well.

The gas is highly ionized, and some of the individual electrons are accelerated to relatively high energies by the hydro-magnetic waves that are travelling up the magnetic field from the photosphere. These electrons then spiral back and forth in the sunspot magnetic field, in the same way that electrons bounce back and forth between the two hemispheres in the Van Allen radiation belts around our (and other) planets. As they spiral around in the strong fields they radiate microwave radio waves. These waves, themselves, have no effect whatsoever on our ionosphere, but their intensity is determined by the number, size and the magnetic properties of the coronal

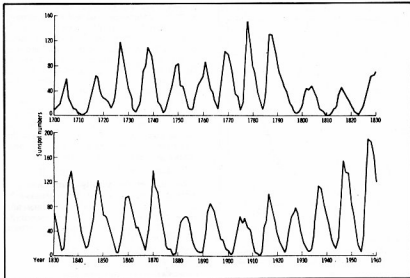


FIGURE 2: The sunspot numbers for the past three centuries.

hot spots. That is, the microwave emission is correlated in a general way with the X- and UV-emissions, and this is the basis for the use of the 10 cm microwave emission index to predict ionospheric behaviour.

ONE LUMP OR TWO

From the above, it is clear that our best way to study and predict the condition of the ionosphere would be to measure the solar X- and UV-radiation intensity. But these radiations are totally absorbed in the topmost 0.1 per cent of our atmosphere, and until recently, we had to make do with the information we could obtain from the optical wavelengths and microwave wavelengths that could penetrate to ground level.

Empirical studies have shown that the number and distribution of sunspots gives a useful barometer that correlates with ionospheric and other geophysical parameters. A rather arbitrary parameter, the Zurich sunspot number $RZ = 10G + S$ is usually used to quantify the sunspot information. In this formula "S" is the total number of individual spots that can be seen on the sun's disc, while "G" is the total number of separate groups of sunspots (e.g. the sunspot pair in Figure 1). Galileo was the first man to see sunspots (and got into some trouble over it), and records have been kept ever since. The sunspot numbers for the past three centuries are shown in Figure 2.

The well known "eleven year" cycle is evident in Figure 2. But look closely in the years between 1850 and 1940. Note how every second cycle is systematically lower than the adjacent cycles. Analysis of the

light from sunspots indicates that the magnetic properties of the spots also alternate between two different states from one cycle to the next. In reality, the physics of the sun exhibits a (roughly) twenty-two year periodicity. Thus the next sunspot maximum (1980) will be a direct descendant of the high maxima of 1872, 1895, 1918, etc., while the recent 1969 maximum was the successor to the low maxima of 1883, 1907, 1929, etc. It is therefore possible that the 1980 maximum will be more like that of 1958 than that of 1969.

MEANWHILE, ON EARTH

The X- and UV-radiation from the sun ionises the earth's atmosphere above an altitude of about 100 km. The number of electrons per cubic centimetre (i.e. the "electron density") is plotted against height in Figure 3. At a time of high solar activity (i.e. high sunspot number and many coronal hot spots) the X- and UV-intensity is greater, and hence the electron density is greater. Incidentally, Figure 3 shows that the ionosphere is a single region some 150 km thick, and that the D, E, F1 and F2 regions are not separate layers but correspond to kinks in the electron density curve.

Figure 4 shows how a radio wave is reflected by the ionosphere. The wave travels in a straight line until it reaches the bottom edge of the ionosphere, when its path commences to bend. Provided the path does not reach the layer of greatest electron density before the wave is travelling parallel to the earth's surface, the wave will return to earth.

The frequency which will just be "reflected" back to earth from the point of greatest electron density when the wave is

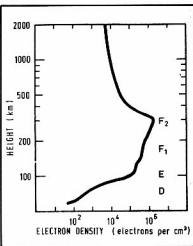


FIGURE 3: The manner in which the concentration of electrons in the ionosphere depends upon altitude.

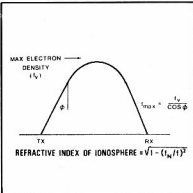


FIGURE 4: A radio wave is gradually refracted as it moves through the ionosphere. This figure shows the path followed by a radio wave as it is returned to earth via the ionosphere.

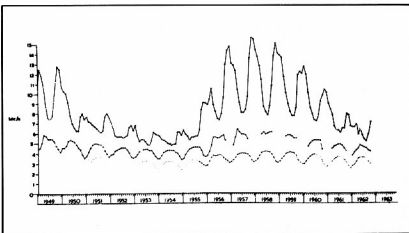


FIGURE 5: The variation in the critical frequency (that is, the highest frequency that will be reflected) of the F1 and F2 layers in England throughout the sunspot cycle 1954-1963.

initially travelling vertically upwards, f_v , is a useful parameter that helps us predict radio transmission characteristics. It is usually referred to as f_oF_2 . For a radio wave hitting the ionosphere at an angle of ϕ , the highest frequency that will be reflected is $f_v / \cos \phi$. For example, if $f = 12$ MHz, and $\phi = 10^\circ$, then the maximum frequency that would be reflected would be 35.1 MHz. Note that the above formula ignores the curvature of the earth; the earth's magnetic field also complicates the matter somewhat. f_oF_2 depends upon the maximum electron density in the ionosphere according to the formula:

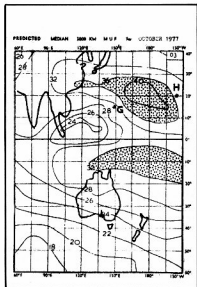
$$f_oF_2 = 9.002 \times 10^3 \sqrt{N_m} \ln H_z$$

As the sun's activity increases (i.e. more coronal hot spots) the increased X- and UV-radiation causes p to increase, and more coronal hotspots) the increased X- thus f_oF_2 must increase. This effect, wherein f_oF_2 increases as the Zurich sunspot number increases, is illustrated in Figure 5.

CRYSTAL BALL DEPARTMENT

Using historical data that relates the world wide f_oF_2 values to solar activity, and for an assumed prediction of future solar activity, the Australian Ionospheric Prediction Service (IPS) makes predictions of the MUF for paths of length λ , and 3000 km.

Figures 6 and 7 are examples of the MUF (3000) charts issued by the IPS on a monthly basis. To find the maximum frequency for a given 3000 km path, the value of frequency at the midpoint of the path should be read. Note particularly that these maps predict the median MUF; that is, for 50 per cent of the month the MUF will be lower, for 50 per cent of the month it will be higher. The variability of the MUF is a result of the fact that sunspot regions (and consequently, coronal hotspots) are not distributed evenly around the sun. Consequently the number of coronal hotspots that can affect the earth varies from day to day as a result of the rotation of the sun.



for 3000 km. Thus for 10 per cent of the month, the MUF for 4000 km will be

$$M(4000) = 1.15 \times 1.1 \times MUF(3000) \\ [10\%] \\ = 1.27 \times MUF(3000)$$

Figure 7 gives the median MUF at 0600 UT for October 1977, at which time the first real 50 MHz DX of this sunspot was being observed in the Pacific. Figure 7 immediately shows part of the reason. Look at the Guam to Japan path (roughly 4000 km). The midpath MUF from the map is 42 MHz. Thus for 10 per cent of the month, the 4000 km MUF would have been $1.27 \times 42 = 53$ MHz. That is, the path would have been open by simple one-hop F2 transmission. Four hours earlier (Figure 6) the region of high MUF lay between Hawaii and Guam, and two-hop F2 propagation was possible on 6 metres for 10 per cent of the time.

Both Figures 6 and 7 show two regions of high MUF north and south of the equator. Simple theory says that there should only be a single region of high MUF, and the observed fact that there are two was called the "equatorial anomaly". Six metre operators should be eternally thankful that theory was wrong!

Figure 8 is a schematic representation of the ionosphere along the path from Darwin to Southern Japan. The two patches of high electron density, north and south of the earth's magnetic equator, can be seen. The path followed by a 6 metre wave leaving the transmitter at a low angle is shown. It can be seen that the refraction of the waves in the southern patch of high electron density is insufficient to return the waves to earth. However they are then refracted again by the northern patch, and the wave then reaches the earth. This is "chordal hop" transmission, and refers to the day time trans-equatorial propagation mode (TEP). Even TEP will not be discussed here, other than to say that it is less well understood, and presents the amateur with an excellent opportunity to perform meaningful research of world-wide significance.

THROUGH A GLASS, DARKLY

What then are the prospects for VHF DX during the 1980 solar maximum?

Despite an excellent set of records of the previous "form" of the sun in its last 25 races (Figure 2), the pundits find it very hard to set the odds for this next race. Predictions vary widely. For interest, however, Figure 9 is one of the more optimistic predictions of the way in which the Zurich sunspot member will behave. It predicts a maximum that is comparable to that of 1958!

Assuming that Figure 9 were correct, what would the propagation conditions be near solar maximum? Roughly, the MUFs in 1980 would be about 1.3 times those in Figures 6 and 7. Thus the median MUFs for 4000 km would be 1.43 times those in the Figures, and for 10 per cent of the time they would be 1.65 times greater. The

actual contours of MUF would be very different in the other seasons of the year, and other times of day, however the general features remain.

Applying the above factors to Figures 6 and 7 predicts the following possibilities for 6 metre DX in 1980:

Perth to Singapore; single hop F2; 50 per cent of the time.

Darwin to South India; two hop F2; 10 per cent.

Brisbane to Hawaii; two hop F2; 10 per cent (also chordal hop).

Sydney to Guam; one hop F2; 10 per cent.

Darwin to Tahiti; two hop F2; 50 per cent.

Northern Australia to Peru; just possible (four hop F2).

Northern Australia to South Africa; possible (three hop F2).

Northern Australia to Southern Russian (longitude 75°E); chordal hop.

Furthermore, such paths will be extended to higher latitudes, and greater distances, if there is sporadic E at either end of the path. Six metres to Eastern Europe, Africa and South America certainly seems feasible.

Finally it should be recognised that the average 6 metre station has improved significantly over the past 11 years, and even more so since the solar maximum of 1958. Higher power, narrower bandwidths, better antennas and lower noise front ends have all increased the station gain between most stations. Reasonable numbers for each of these factors suggest an increase

in average station gain, compared to 1969, of between 12 and 15 dB; i.e. some 2 to 2½ S points. This, plus a greater number of stations, means that there will be a considerably greater probability that a path will be used when it is open. Longer multiple hop paths will become workable.

In summary, worked all continents on 6 metres from Australia is conceivable in the years ahead. Certainly, widespread communications with Asia and the Pacific and Indian Ocean regions via F2 propagation is a certainty. Openings may often be short, however, and will frequently go un-noticed through lack of amateur stations. It will be fruitful to test strange paths (e.g. due east to South America via the corridor of high ionization (MUF) in Figure 6) at the right times. The sun will cause these paths to open; the problem is to be there at the right time.

Be in it!

(Reproduced from the Proceedings of FACT Symposium 1978.) ■

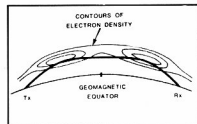


FIGURE 8: Illustrating chordal-hop propagation.

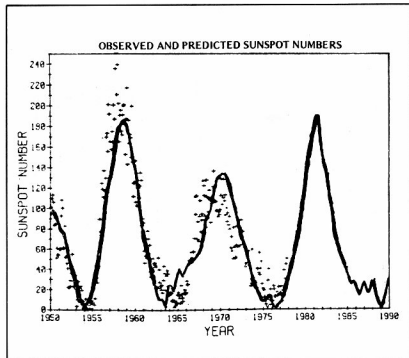


FIGURE 9: The predicted sunspot number of the present sunspot cycle.

REPEATER TIMER TIMER

Dave Cooper VK7ZDC
PO Box 212, Bellerive 7108

Here is a device which gives the operator an audible warning prior to the repeater time out. It can be fitted to most transceivers via the auxiliary socket, in which case no modifications are required.

The time interval can be varied over a large range (with values shown, R2 limits provide 1.5 mins to 4.0 mins). As can be seen, the circuit has been kept as simple as possible, consistent with reliable operation.

The circuit is based on the 556 (LM556, NE556, etc.), being a dual version of the 555 Timer in a single package. The operation of the device is easily understood and will not be explained here as it is adequately covered on the manufacturer's data sheet.

CIRCUIT OPERATION

During the receive mode, pins 4 and 10 (resets) are held low by R7 disabling both sections of the device. (Note: C2 is discharged.)

Operation of the PTT switch raises pins 4 and 10 to 12V. Pin 6 (Trigger) goes low momentarily providing the trigger to set the time in operation. Pin 5 (Output) goes high holding C3 charged via D1, thus disabling the audio oscillator. The timing period is now under way, dependent on the values of R1, C1, and the setting of R2. When the upper trigger point is reached, pin 5 goes low, enabling the audio oscillator.

The audio oscillator is a basic stable configuration, the frequency being set by R5, R6 and C3. The output level is set by the value of C4.

The circuit can be reset at any time by releasing the PTT switch.

CONSTRUCTION

The circuit was built on a PCB (Fig. 2) and mounted in a Kodak slide container (20 slides x 35 mm), this being attached beneath the transceiver with rubber bands. The four external connection plug into the auxiliary socket of the transceiver.

COMPONENT LIST

- R1—2M Ohm
- R2—10k multiturn trimpot
- R3—47k
- R4—1k2
- R5—12k
- R6—1k2
- R7—1k2
- All resistors 1/4 watt
- C1—47 uF 15V electrolytic
- C2—4.7 uF 15V electrolytic
- C3—0.056 uF ceramic
- C4—0.022 uF ceramic
- D1—1N914 (or any small diode)
- IC—556 (or 2 x 555)

Speaker—A rock armature earpiece from an old telephone or smal speaker.

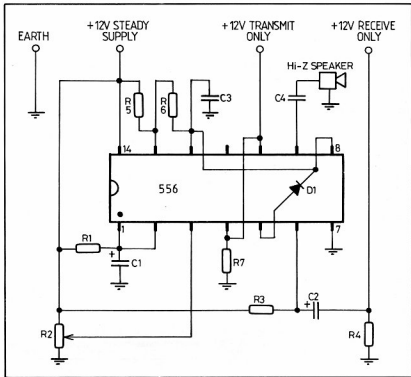


FIG. 1: Circuit diagram.

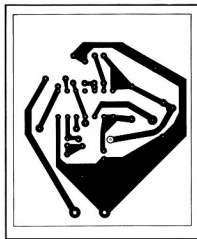


FIG. 2A: PCB layout, copper side.
Approx. half size

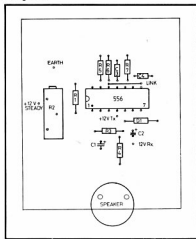


FIG. 2B: Component layout.

SUGGESTED REFINEMENTS

If several time intervals are required, several resistors could be switched in place of R1.

If a repeater/simplex switch is available this could be used to disable the device during simplex operation.

MODIFICATIONS TO SOLID STATE VIDEO SWITCHES

C. Maude VK3ZCK
2 Clarendon St., Avondale Heights 3034

After reading the article by Andrew Pierson in AR March 1979, I decided to build one of his type 1 switches using 4016s.

I designed a printed circuit board similar to the one shown here with the component layout; the circuit worked very well. I am associated with DPTV10 (Melbourne's Cable TV station at Debnay's Park) and was not happy with the use of toggle switches for routing video around the console. The first switch I made eliminated some of the toggle switches and some screwed connections. What was then needed was a switch to provide one input to two outputs.

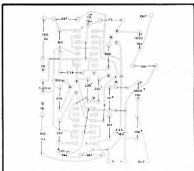


FIG. 3: Component Placement.

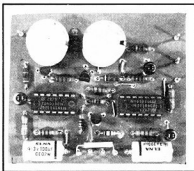


FIG. 4: PCB, Component Side.

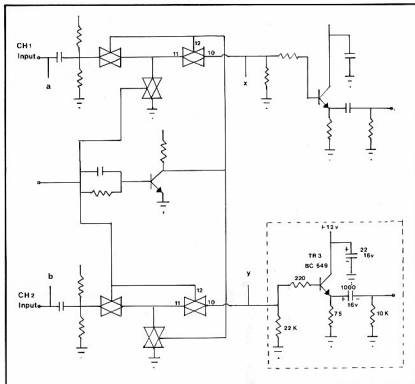


FIG. 1: Modified Circuit Diagram.

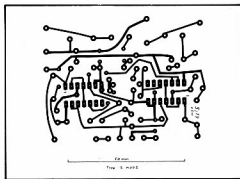


FIG. 2: PCB, Copper Side, Full Size.

A modified circuit was produced together with a printed circuit board, Figs. 2, 3, shown here. The board can be used for either the modified function or for the original circuit. The components in the circuit diagram, Fig. 1, which are labelled

are those required for the new circuit. The unlabelled ones are as in the original article. The components inside the dotted box can be left out and links X and Y joined if the original circuit is required. Two switch one input to two outputs join A

and B and include the circuitry in the box. The component layout shows these components marked with a star.

Both versions worked very well indeed and I thank Andrew Pierson for the original article.

WHAT'S LEFT FOR THE NOVICE?

By Lance Ferris VK2NVF
PO Box 40, Casino, NSW 2470

Here's a duo-band yagi for 10 and 15 metres for those of you with a spirit of adventure.

When I attained my Novice licence in June 1978, I began to realise that the field of electronics had moved far ahead of its time and there appeared to be no obvious avenues for experimentation or invention by the newcomer. Rigs have become a "no-deposit, no-return, throwaway" shelf item exhibiting different brands and price tags, all doing much the same job. On the other hand, antennas seem to be "branching out" (pardon the pun) into many weird and wonderful designs.

One day I met Bert, an electrician, who was in the process of installing a power point. I stuck my chest out and told him I had just qualified as an amateur (I somehow forgot the word "Novice") and gave him some general advice in relation to the safety aspects of the installation of power points. In reply to my advice, he told me of his hobby, more than ten years experience in tracking satellites. I didn't need to open the door when I left the house, I found I could fit quite well through the crack at the bottom. His knowledge on antennas was mind boggling and I was delighted when he offered to send me some material on "circular polarisation".

For the next week, my brain was a whirling mass of antenna designs, one of which was circular polarisation on HF with crossed yagis. My four element home-brew yagi worked well, but being horizontal, propagation to local mobiles was limited. I needed a high gain system for vertical polarisation.

I tried 4 x 4 crossed yagis on 10 metres and the array seemed to be okay, although QSB still seemed to be a problem. Locally, because of rather mountainous terrain, mobile signals suffered and I also noticed QSB on DX skip contacts. On DX, however, I was able to eliminate quite a bit of QSB by switching back and forth from vertical to horizontal. For instance, when signals began to fade on the horizontal, quite often they improved by switching to vertical.

With the word "circular" still in mind, I saw a paragraph in the RSGB Amateur Handbook which read, "The use of circularly polarised antennas for general transmission and reception at HF is to be recommended where possible, since such an aerial offers the best compromise solution to the randomly varying elliptical



Rhonda VK2NWF and Lance Ferris VK2NVF.

polarisation experienced by waves undergoing ionospheric propagation and reflection". I then began to wonder, "What kind of mirror is the ionosphere?". The myth of it being a smooth, shiny, glass-like reflector has now been amended in my books. To me, it appears like the face of the moon, with mountains, craters, holes, humps, bumps and the lot. One also must consider the ground as it also is involved in the reflection process, and it certainly is not flat. It is these factors that obviously twist and turn the polarisation of the radiated signal, causing the received polarisation to differ, or in the case of "skip" to even become circular or elliptical. My crossed yagis catered for two aspects of polarisation.

Then the booklet arrived from Bert. The words "NASA — USA", heading the top of the page, had me boasting for two days, and when I had settled down, construction began on a bank of relays and an appropriate phasing harness. To obtain circular (axial-fire) polarisation from crossed yagis, the arrays are fed with a coaxial phasing harness which phases one antenna 90 degrees behind the other. By swapping the feed points the "sense" is determined, i.e. clockwise or anti-clockwise. The principle is widely used on VHF and above with crossed yagis and the "Helix". Why not on HF? Maybe the size of the array causes concern. Weight is

only marginally increased with the extra elements on the common boom.

Results were amazing. I found QSB on DX caused by polarisation changes was reduced and in many cases eliminated by a conservative 60 per cent of contacts. Similarly, ground-wave QSB caused by reflections was also considerably reduced and with the increased range, mountains and timbered country barely caused a problem with propagation to mobiles.

George W5KHN called me from Texas one day, and told me of his success story with his axial-fire yagis. He included a snippet about his friend Jim W4YHF, from Smyrna, Georgia, who "replaced his quad" with crossed axial-fire yagis, and "heard stations he had never heard before". That may sound, as it still does to me, somewhat surprising, but on many occasions I have heard signals of around 4/0 on the horizontal or vertical. By switching to circular, I have witnessed dramatic increases to 5/3. On one occasion, by switching to circular, I completely eliminated a back-scatter or long-path echo that was making a 30 km contact with Ross VK2NUD almost unreadable. On another occasion whilst talking to a VK5 on horizontal, Bill VK2VDI (another local) came over the back of the beam about 5/3. I switched to circular and I thought Bill had switched off. His signal was virtually eliminated. And one I'll never ex-

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QSP

EXPERIMENTS RECEIVING LICENCE — 1913
Graham Austin VK3ANZ has forwarded to us a
photograph of an Experiments Receiving
Licence, issued to his father-in-law, Ted Holder,
and signed personally by the then Postmaster-
General, Agar Wynne, dated 5th December, 1913.

The receiving licence was issued under the
Wireless and Telegraphy regulations of 1905. These
regulations still form the basic part of our current
regulations today — only slightly amended.

In part, the licence authorised Mr. Holder to
"... establish, erect, maintain and use at the
station specified in the First and Second Schedules
hereto, appliances for the purpose only of receiv-
ing messages by means of wireless telegraphy ..."

The First Schedule authorised the use of a
detector, condenser, tuning coil and telephones.

The Second Schedule depicted the authorised
circuit the above components were to be used in
— a simple crystal set.

Those were the days!!

SATELLITES

It is interesting to read details about the 158
satellites launched during the year 1978 as pub-
lished in the Telecommunication Journal of the
ITU. A few have a mass of 7 tonnes, where mass
details are provided, others range around 1 to 1½
thousand kg. The two USSR amateur radio satel-
lites, Radio-1 and Radio-2 appear to have been
launched from Plesetsk piggy-back with Cosmos-
1045 on 26th October with a perigee of 1688 km
and apogee of 1724 km. Amsat-Oscar-8, however,
launched 5th March, showed 897 km and 914 km
respectively.

BANNED COUNTRIES LIST

"There is no banned countries list. (American)
amateurs may presently communicate with other
amateurs in any country without violating (FCC)
rules." — QST July 1979.

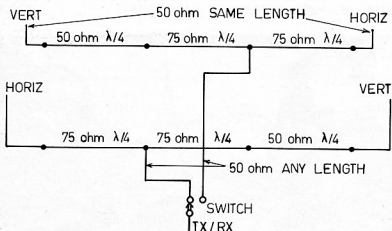


FIG. 1 (Above): Original harness circuit.

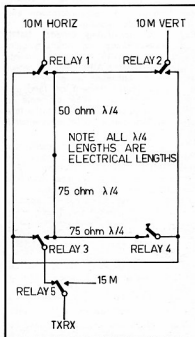


FIG. 2 (Right): Homebrew modification with relay system requiring one harness only.

AMATEUR RADIO ACTIVITIES

(STATE AWARD CONFERENCE)

The occasion was a visit by the Governor-General, Sir Zelman and Lady Cowen to the State Award Conference of the Duke of Edinburgh's Award Scheme held at the "Namaroo" Conference Centre, Lane Cove, NSW, on Saturday, 7th July, 1979.

On that day, over 100 young people from all over the State were on hand to provide demonstrations of the many facets of Award Scheme activities, including those associated with community service requirements, expedition, and physical skills.

A number of hobbies and interests were also on display for the benefit of the general public, friends of the Scheme, as well as parents of awardees, all of whom attended in large numbers.

One such exhibit was an amateur radio station operated by James Woodhill (VK2YKH/VK2/NYW), a Duke of Edinburgh's Award candidate and a student at Hurststone Agricultural High School, Glenfield, NSW. Jim was supported by a well known South Coast amateur, Brian Wade (VK2AXI), and other students from the Hurststone Amateur Radio Club, whose members are mostly candidates for

Bronze, Silver, or Gold Duke of Edinburgh's Awards.

The station operated throughout the day using 80, 15 and 10 metres on HF, and simplex and repeater channels on VHF. Call signs used were VK2VQW and VK2YNH, the call signs of the Hurststone Amateur Radio Club. Contacts were not, unfortunately, numerous, though the station and associated displays were well received through the day. The Governor-General stayed for some time and appeared particularly interested in the efforts of those concerned.

Appreciation is expressed to the WIA (NSW Division), for publicity material borrowed to support the display, and in particular to Tim (VK2ZTM) for his personal efforts in making such material available at short notice.

The accompanying photograph shows Jim (VK2YKH) with Brian (VK2AXI) answering a question from Sir Zelman Cowen.

Submitted by Ross Wilson (VK2VDH), Senior Resident Master at Hurststone Agricultural High School, Glenfield 2167. 6th August, 1979. ■



The antenna at the home QTH.

plain . . . when working a DX station and a local calls in off the side of the beam, I can usually switch to a mode WITHOUT turning the antenna, and lift the local to 5/3 or better WITHOUT affecting my signal to the DX station.

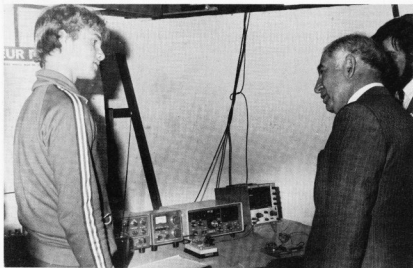
Discovery of new properties of the array seem to be never ending and I would be particularly interested to hear from any amateurs who have tried a similar system on HF.

Three elements interlaced for 15 metres caused no problems with interaction, and allowed for wide spacing of elements on both bands, facilitating broader bandwidth, easier tuning and optimum gain. The basic layout of the horizontal elements can be found in the ARRL Radio Amateur Handbook, modifications being the elimination of the fourth element on 15m, and the addition of four vertical elements on 10m, coincident on the boom with the four horizontal 10m elements. Driven elements are gamma matched.

The relays used were "Siemens" mini relays, and a bank of five allowed for the four modes on 10m and switching to 15m. Although not coaxial relays, they have now been operational for almost 12 months and no problems have developed. It appears that this type of relay is not critical when used on HF, however I would not advise switching during transmission as this could probably cause arcing and burn the relay points.

The array, affectionately named "Tracker 11", sits atop a modified, winch-up, fold-over tower at a height of 17 metres. With 30 watts PEP the antenna has proved itself with excellent reports on both bands.

What's left for the Novice? . . . Read the fine print. Avenues are abundant. ■



The Governor General inspects the display.

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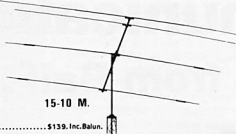
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CANADA-AUSTRALIA TV SATELLITE TRANSMISSION TESTS

by Bob Cunningham VK3ML

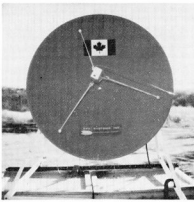
I was in Townsville at the commencement of these TV tests and, in company with Peter Snell VK4APS, I journeyed to Charters Towers on Sunday, August 5th, 1979, where the public had been invited to a demonstration at the RSL Hall.

The object of these tests was to prove that, with simple equipment, TV programmes could be sent to remote areas, such as in Australia, via satellites. The P. and T. Department arranged for the demonstration. The transmission emanated from Ottawa, Canada, and was picked up by a 1.2 metre diam. dish at a frequency of 12 GHz. The dish looked at an elevation of 7 degrees and a bearing of 85 degrees. The polarisation at the equator was horizontal but from the actual location it was 73 degrees.

The incoming signal was converted from 12 GHz to 1.2 GHz via a down converter which was placed at the focus of the dish. The output of this converter is fed via coaxial cable to and experimental 1.2 GHz receiver then to a standard TV monitor.

The exhibition on this occasion was carried out by two well known Queensland hams Brian Rickaby VK4RX and Neville Madden VK4EK, both from the P. and T. Department.

I witnessed perfect colour reception and according to the press the experiment was well received by the public. ■



Front view of the 1.2 metre dish for 12.4 GHz reception.

SAFETY EXPERT'S STORY: PLANNING SAVED FAMILY FROM FIRE

Submitted by Alan Isaachsen VK5IR

I have been a safety engineer for too many years not to retain a certain amount of professional detachment in the face of a major emergency, even when my family is involved. We safety engineers tend to be pragmatic about disaster and preach that we must be prepared for it through preplanning. Do we practice what we preach?

The storm of Monday, June 5, 1978, caused a disaster at my home, and I would like to share the experience with you. The lessons learned may prevent loss of life at your house.

At 7.45 p.m., my wife and two youngest children (5 and 10 years old) were home alone. I was at a friend's house helping him install a new cooler. My wife was listening to her CB radio. She calls it "copying the mail". The two little girls were playing in their bedrooms.

A sudden gust of wind bent the top of the radio antenna mast over until the tip came into contact with the power lines that run behind the house. The high voltage power was fed back down the antenna coax cable and into the radio, which immediately exploded. My wife, fortunately, was not touching the radio or microphone. If she had, she would have been electrocuted instantly. The ball of fire from the explosion resulted in flash burns on the side of her face and some singed hair.

The electricity then left the radio via its power connection and entered the house wiring system, looking for ground. It found ground in the washer in the utility room, and the washer exploded. This caused a second fire that my family did not see until later. Then the fuses blew, plunging my house and the entire neighbourhood into total darkness.

My wife called the children while getting our fire extinguisher and ordered them to take our three cocker spaniels and leave the house. The children went across the street to a lamp post where we had agreed we would meet and waited. Meanwhile my wife extinguished the fire at the radio and called the fire department. She then joined the children.

While talking to my wife, a neighbour spotted the fire in the utility room. Thanks to preplanning, my family did not re-enter the house.

The fire department arrived about two minutes later. After determining that no one was still in the house, they began fighting the fire. The paramedics treated my wife at the scene and suggested she be seen at the hospital by a doctor.

This precaution was necessary to ensure that her vision had not been affected. She agreed and called me from the neighbour's.

I arrived shortly thereafter to find the fire out and the firemen starting clean-up operations. The children were safe, so we went on to the hospital. The burns were only superficial. All we lost were "things". All my friends and neighbours commented on how lucky we were. True.

We were lucky that I had purchased a fire extinguisher for the home years earlier. Lucky that I taught my wife and all the children how to use it. Lucky that I made sure periodically that it was serviceable.

We were very lucky that we had sat down as a family and discussed, in advance, what we would do in an emergency. Lucky we picked a nearby place to meet so we would know everyone was out safely, and lucky, too, that one of the rules is that once you are out, you stay out.

Yes, it was a beautiful disaster. Everyone did just exactly the right thing. Lucky? I don't think so. I think it was the result of the planning we had done much earlier. You can count yourself lucky, too, if you:

1. Have a home fire extinguisher and make sure everyone in the family knows how to use it, and where it is kept.
2. Have a plan for getting out of the house in an emergency. This includes a nearby meeting place so Mu mand Dad can count noses.
3. Agree on some rules in advance: (a) once you are out, stay out; (b) no favourite possessions are worth your life; (c) call the fire department even if you think the fire is out.
4. Install smoke detectors.

In this case it would not have made any difference, but most fires do not start so violently. Smoke detectors may buy you enough time to get out.

Pat Robinson, Motorola Inc. Semi-Conductor Group. ■

ASIA-PACIFIC/AUSTRALIAN SCOUT JAMBOREE

The 4th Asia-Pacific/12th Australian Scout Jamboree is to be held at Perry Lakes, Perth, Western Australia, from December 29th, 1979 to January 7th, 1980.

Western Australian Scouts are excited about the prospect of presenting their first ever Jamboree, and a cordial invitation has been extended to Scouts from all over Australia and from Overseas, to share in this great activity.

The Jamboree has further special significance for Western Australians in that it will form part of a year long programme of celebrations for the State's 150th Anniversary, and will be a fitting climax to those celebrations.

The vast distances and small potential of people power do not deter Western Australians from thinking big. Although covering one-third of the Australian continent making it the biggest State in the world, the West has only eight per cent of its population at about 1.2 million people.

1979 is the State sesquicentenary (150th anniversary) year so many years ago the WA Scout Branch applied for the regular three yearly Australian Jamboree, always previously held in the populous Eastern seaboard States. This was agreed and the Jamboree becomes the final event in a year long birthday party embracing the whole population from all towns utilising all activities which could be imagined.

World Scout Bureau gave it regional status as the 4th Asia-Pacific Jamboree. Subsequently, with the postponement of the 1979 World Jamboree in Teheran, Iran, it became one of the 1979 World Jamboree Year Camps. About 8000 Scouts from Eastern States and over 100 from 30 overseas countries will mix with 2000 locals for eight days of camping, activities, sight-seeing, shopping, trying new skills, fraternisation and fun.

Because Amateur Radio amplifies many of these Jamboree concepts, e.g. new skills, fraternisation and fun, local amateurs are preparing one of the biggest VK6 stations ever mounted. Facilities will include:

A high frequency station on 20 or 15 metres operating round the clock beaming the world, including eastern States.

A high frequency station on 15 or 10 metres operating all day beaming eastern capitals.

A high frequency station on 40 or 80 metres operating as required with dipole aerials favouring north/south.

RTTY station operating most of the time as signals are available.

Amateur TV on UHF with special receivers located in sub-camp fraternity areas.

Three or more VHF stations on 2 metres and 6 metres and perhaps other bands.

A workshop will be included where, under the supervision of Amateurs the Scouts will be able to build a simple electronic working project. In addition a broadcast band radio station on 1610 kHz is in preparation so that items of news, happen-

ings, instruction and music can be conveyed quickly to all Scouts and for their entertainment.

It is expected that the stations will be busy with Amateurs in contact and that the special Jamboree Badge QSL Card will be in demand. It is hoped also that Scout Groups and units with Radio Amateur capabilities or friends will make a special time to get together during the Jamboree to make contact. Further, it is expected that many Groups round the world will want to make contact to find out how the Jamboree and their particular people are progressing. To assist these contacts SKEDS WILL BE ACCEPTED for a particular frequency, date and time BY MAIL to:—

Scout Amateur Radio VK6SH,
12th Australian Jamboree,
Box 467 PO, West Perth,
Western Australia 6005.

To test propagation conditions as far as is possible all skeds will be acknowledged by trying all contacts with one of the VK6 Amateurs on the organising team exactly FOUR WEEKS to the day and hour on which the contact is asked for. If that sked does not work another will be tried a week later—THREE WEEKS from the Jamboree.

The sooner that skeds are requested the better can the arrangements be.

The Jamboree is being held at Perry Lakes Stadium and associated grasslands—an international track and field site established for the Empire Games in Perth in 1962. The radio station is to be sited on the top floor of the stadium building using most of an area 250 ft. long by 11 ft. wide.

For further information contact:

JAMBOREE

Mr. Alex Shaw,
The Scout Association of Australia.
(WA Branch),
Box 467 PO,
West Perth, WA 6055.
Phone 321-7217
(Mr. Doug Napier)

RADIO

Mr. Peter Hughes,
Asst. Branch Commissioner,
55 Preston Street,
Como, WA 6152.
Phone 367 1740
(mornings 364 7588)

COMMERCIAL KINKS

With Ron Fisher VK30M
3 Fairview Avenue, Glen Waverley 3150

After a long absence the FT-200 returns to our column, but before that a quick and easy modification to a not so well known two metre FM transceiver. The MULTI-QUARTZ 16 is certainly not well known in Victoria. Perhaps there are more around in other States. Available up until about a year or so ago, they were a real bargain at \$175, complete with eight repeater and two simplex channels installed. At the time I obtained one for a friend, but of course tried it out before passing it on. Performance was quite good with one exception, the received audio quality was very woolly. There was a decided lack of high frequency response to the point the readability was poor under mobile conditions.

In checking out the trouble an audio signal was fed into the receiver audio section which proved to be almost hi-fi in quality. The lack of highs was traced to the discriminator which had apparently been designed with too much de-emphasis. Two capacitors were removed: C72, a .1 mF disc ceramic, and C73, a .02 mF green cap. It was not necessary to use a soldering iron, a quick twist with a pair of long nosed pliers was all it took. Received audio was now normal.

Now to the FT-200. Ian Huser VK5QV was having trouble with strong local signals overloading the receiver. A simple modification changed the AGC from RF to audio derived with apparently excellent results. Let's see how it was achieved.

The problem of strong RF fields operating the AGC in an FT-200 can be overcome by using audio derived AGC rather than the RF derived AGC used in the original circuit.

The conversion is simple, and can be completed in about 5 minutes once the components have been identified.

Remove the 100 pF capacitor (C127) and the "gimmick" capacitor (C165).

Connect a 0.047 uF capacitor between the top end of the volume control and pin 2 of the AGC amplifier (V102b).

Connect a 0.47 uF 150 volt polyester capacitor across C126.

Re-peak L101, and the modification is complete. ■

QSP

MEMBERSHIP STATISTICS

The address label control totals for August AR show that for the first time ever 4 thousands exceeded one thousand each. VK4 recorded 1028 labels and VK5 recorded 1014. This is a far cry from only a few years ago when the totals were only 400/500 each. For the same issue both VK2 and VK3 were very close to 2000 each. ■

FINANCIALLY SPEAKING

Courtney Scott VK3BNG

The WIA is a service organisation dedicated to the amateur radio fraternity in Australia and, in particular, providing services to its members.

The extent of the services is limited by cost.

If income could be boundless then the imagination could run riot with all sorts of grand ideas but, of course, this is not the case.

Actually, much time and thought is put in by councillors and executives at the convention and at meetings to produce a balanced budget.

Balancing the budget in the most simplistic terms means providing an acceptable service at the lowest cost to the members.

The term "acceptable service" will mean different things to different people. There is no way of achieving total agreement amongst all members in this regard.

It is generally agreed that Amateur Radio and the publication of the Amateur Radio Call Book are highly desirable services.

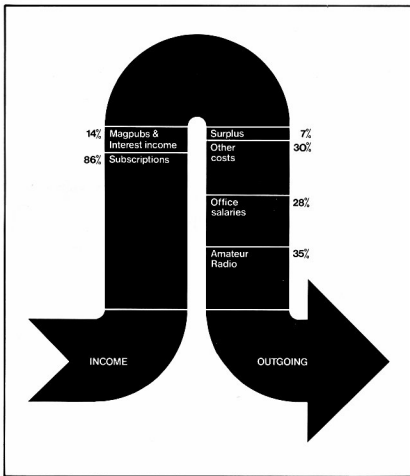
However, all thinking amateurs will be aware, particularly in this day and age, that representation at the appropriate places in protection of our hobby is a vital service: The need to speak with one voice.

Couple with these the diverse activities that are provided or are available to members and the sum total is that the WIA is not as stodgy as some would have you believe in servicing its members, and in some respects, non-members.

Illustrated is a general breakdown of income and expenditure for the year ended 31st December, 1978, of the Federal body. Full details were given in AR for July, 1979.

It will be seen that Amateur Radio takes 35 per cent of the income.

"Other Costs" refer to expenses other



than AR and Office Salaries, and include office rent, computer time, printing and stationery, etc.

Office salaries take 28 per cent of income. It is difficult to put a cost on some services but WIA could not exist with any strength without professional administration.

On the income side, note particularly

that subscriptions do not fully cover expenditure and we rely on the sale of publications and interest to make up the short-fall and provide a small surplus.

The Federal portion of subscriptions is a fixed amount per member. No one can say when inflation will cease and costs will invariably rise. So must the Federal dues. Either that or standards must fall. ■

AMATEUR RADIO MOBILE SOCIETY

OBJECTS OF THE SOCIETY

It was formed in 1959 to cater for all interests of mobile amateur radio on a world-wide basis. It is a truly international organisation. Members are in all continents; some countries represented are Australia, Canada, New Zealand, South Africa, the USA and many European countries.

MEMBERSHIP CONDITIONS

Australian amateurs are automatically eligible for Corporate membership as our licences permit mobile operation.

OVERSEAS REPRESENTATIVES

Overseas representatives exist in many countries, and the society is administered in the United Kingdom. The present secretary is Norman Fitch G3FPK, 40 Eskdale Gardens, Purley, Surrey CR2 1EZ.

MOBILE NEWS

Mobile News is the name of the society journal, published eight times a year. It contains technical articles, reviews of equipment, antenna ideas, interference suppression, etc. It also contains news of world-wide mobile events, reciprocal licensing, and so on. It is produced offset in A5 size and is of a high standard.

HEADQUARTERS STATION

Headquarters Station has its distinctive call sign G4AMS, which is used at events in the UK. It was operational in a weekly net for the benefit of overseas members in particular, on 21 MHz, but the co-ordinator recently discontinued the proceedings due to lack of support. As there are quite a few members in VK, it might be worth exploring the setting up of a local net for members or interested parties, at any rate on a trial basis. It is not suggested that participants should necessarily be mobile at the time of the net!!!

AWARDS PROGRAMME

The premier award is the "MOBILE CENTURY AWARD" for contacting 100 countries whilst operating mobile.

The WAC/Mobile certificate is for members only and is self-explanatory. The Maurice Margolis Award is a special members only award, named after G3NMR, who did much for the society in the past and was a keen mobile DXer. Individual trophies are awarded each year for retention by the winners, who submit the best aggregate score in terms of the point-to-point distance in kilometres for up to three mobile-to-mobile contacts in each calendar year.

Contributed by Dick Ashton VK5DQ, PO Box 11, Woomera, SA 5720, who will endeavour to answer any queries upon receipt of a SASE. Membership enquiries should be addressed to G3FPK, 40 Eskdale Gardens, Purley, Surrey CR2 1EZ, United Kingdom. ■

QSP

LOTTO FACTS

Jonathan Kitchin VK6TU

The possible combinations of 6 out of 40 is 3,838,380.

Arranging the 40 numbers into three groups the possibilities in each group can be determined. The net possibility is the product of each group multiplied with the other groups. The three groups are

1-14	14
15-26	12
27-40	14

If all 6 numbers are put in the first group then none are left for the second and third groups. This is written as 6 0 0 .

The tables below are written in this manner, the possibilities of each combination are shown alongside. They total the figure above, 3,838,380.

6 0 0	3003	
0 6 0	924	
0 0 6	3003	
<hr/>		
5 1 0	24024	6930
5 0 1	28028	
1 5 0	11088	
0 5 1	11088	
1 0 5	28028	
0 1 5	24024	
<hr/>		
4 1 1	168168	
1 4 1	97020	
1 1 4	168168	126280
<hr/>		
4 2 0	66066	
4 0 2	91091	
2 4 0	45045	
0 4 2	45045	
2 0 4	91091	
0 2 4	66066	
<hr/>		
3 2 1	336336	404404
3 1 2	397488	
2 3 1	280280	
1 3 2	280280	
1 2 3	336336	
2 1 3	397488	2028208
<hr/>		
3 3 0	80080	
3 0 3	132496	
0 3 3	80080	292556
<hr/>		
2 2 2	546546	546546
<hr/>		
Grand Total	3838380	

The table with 3 2 1 has obviously the greatest number of possibilities.

The line 2 2 2 has the greatest possibilities on its own.

To make 8 entries use 6 from the 3 2 1 table one from each line, and 2 from the 2 2 2 line. Take the 2 2 2 line, the first 2 means any 2 numbers from 1 to 14, the second 2 means any 2 numbers from 15 to 26, the third 2 means any 2 numbers from 27 to 40.

Good luck.

A Totally New Concept for Amateurs!



For your next holiday, imagine

arriving somewhere across the country or across the ocean at another Ham's QTH, while your own home is being cared for by another amateur who shares your interests and concerns. QTH Exchange Service provides listings, with photos, of numerous locations whose owners are looking for a unique holiday experience. Not limited strictly to exchanges, listings might include guest cottages, boats in marinas, spare rooms, summer homes, grass huts, condos, etc. All arrangements handled privately by owners themselves.

First edition available in March, 1980; fall supplement in October.

Special Charter Subscription rate available until December 31, 1979 includes listing, directory and supplement for \$20. CAN or \$18. US. After January 1, 1980 rates will be \$25. CAN or \$22.50 US funds or equivalent.

Please write for more information and an application form. Deadline for the spring directory is Jan. 31, 1980.

QTH Exchange Service

BOX 3329, MISSION, B.C. CANADA V2V 4J5

QSP

WHITE STICKS

A report in the Telecommunication Journal of July 1979 gives an outline of the projected production of 1,000 sticks for the blind as developed by or for the Swedish National Department for Technical Development. The sticks are equipped with a laser device emitting an invisible beam which is reflected by any solid object at a distance of 2m from the path of the person carrying the stick, whereupon a sound signal is triggered. The sticks are made of carbon fibre and plastic. Also reported is a system using underground cables and a portable receiver for shopping centres. The receiver ticks quietly as long as the user follows the path, but emits a special signal when he deviates from it on either side.

VICOM OPENS IN NEW ZEALAND

The active communications group, Vicom International Pty. Limited has opened an office in New Zealand to handle the increasing interest there in consumer and professional communication products.

Their first target is the amateur radio market, which Vicom feels has been neglected by the traditional sellers.

A spokesman for Vicom said that most amateur equipment was sold conservatively in New Zealand and the hams there had not had the opportunity to buy from a professional organisation properly geared for their market.

"We hope to provide well-priced equipment backed by sound technical expertise and technical support. This has been a key to our success in the Australian market," the spokesman said.

Vicom's New Zealand office is located at 10 Lion Court, Upper Hutt. Phone: (4) 28 7946.

"LISTENER" ACQUITTED

In the Melbourne Magistrates' Court on the 2nd May, 1979, Mr. Walker, S.M., dismissed two charges against a Melbourne man brought under the Wireless Telegraphy Act. The charges related to the use by the defendant of a Bearcat 210 scanning receiver. It was alleged by the informant, an officer of the Postal and Telecommunications Department, that the receiver was used in contravention of the Wireless Telegraphy Act. The Bearcat 210 receiver covers the frequency bands 32-50 MHz, 146-148 MHz, 148-174 MHz, 450-470 MHz, 470-512 MHz and 416-450 MHz.

Evidence was given that the defendant had admitted to receiving amateur, CB, marine and police transmissions. Evidence was also given that the receiver was capable of receiving the Wireless Institute's Sunday morning broadcast. The defendant gave evidence that it was his belief that he did not require a special licence to use the receiver.

In dismissing the charges, Mr. Walker stated that he accepted the submission of Counsel for the defendant that the Bearcat 210 receiver was a receiver capable of receiving broadcasting programmes and by virtue of Section 130 (2) of the Broadcasting and Television Act a licence was not required for this receiver under the Wireless Telegraphy Act. The Magistrate also found that, in any event, the defendant had an honest and reasonable belief that the receiver in question was capable of receiving broadcast programmes, ruling in effect that he would have dismissed the charges on this ground alone.

DUAL LICENCE HOLDERS

At the last count of the VWA alphabetical computer listings a little over 250 amateurs throughout VK held two calls, either a limited/novice call or two full calls each.



APPOINTED DEALER



LATEST RELEASE TS 180s...

FEATURES DFS (DIGITAL FREQUENCY CONTROL)
ALL SOLID STATE * 160m to 10 METERS * TWO BUILT
IN MICROCOMPUTERS * FOUR MEMORIES * PLUS
MANY OTHER EXCLUSIVE FEATURES.

TS 520 S \$630.00 WHILE STOCKS LAST
TS 120 V TRANSCIVER
TS 120 S TRANSCIVER

TR8300 *Special*

UHF FM 10 WATT TRANSCIVER
wide band width, suitable for present and
proposed 70 cm. band plan. Optional
Crystals available to order.

PRICE: \$365.00

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MC - 10 Price: \$20 MC - 50 desk Price \$55

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144 MHz DIGITAL PLL SYNTHESIZER FM TRANSCIVER
ALL ELECTRONIC MEMORY, 4 CHANNELS PLUS
SCANNING, 10 KHz STEPS
PLUS 5 up., 1,000 CHANNELS

PRICE AMATEUR NETT: \$360.00 (PACK & POSTAGE \$5.00)

MML 50/25 MML 144/25

25 WATT 50MHz LINEAR POWER AMP.
LIFIER & LOW-NOISE RECEIVE PREAMP
25 WATT 144 MHz LINEAR POWER AMP.
LIFIER & LOW-NOISE RECEIVE PREAMP

* RUGGED 65W DISSIPATION PA TRANSISTOR * ULTRA LOW-NOISE
RECEIVE PREAMPLIFIER * EQUIPPED WITH RF VOX AND MANUAL
OVERRIDE * L.E.D. STATUS LIGHTS FOR POWER & TRANSMIT
* SSB/FM, AM and CW.

LINEAR AMPLIFIER
Power profile: 25 watts typical output
for 3 watts input
Frequency 50-54 MHz
bandwidth: 144-148 MHz at -1 dB
Power 13.8 volts at 2.8 amps
requirement: for 25 watts output
Quiescent
current: 75mA nominal at 13.8 volts

RECEIVE PREAMP
Overall gain: 10dB typical
Overall noise figure: Better than 2.5 dB
Frequency 50-54 MHz
bandwidth: 144-148 MHz at -1 dB

Weight: 300g
Overall size: 150 x 65 x 47 mm



NEW PRICE AMATEUR
NETT \$105.00 (Pack & Post \$3.00)



AMATEUR

PRICE MML 432/50 \$265.00 NETT

NEW MML 432/50

50 WATT 432 MHz LINEAR POWER
AMPLIFIER AND LOW-NOISE
RECEIVE PREAMP

FEATURES - * 50 watt minimum output, 6dB typical gain * Rugged 145w dissipation
PA transistor * Ultra low-noise receive preamplifier * Equipped with RF vox and manual
override * Led status lights for power and transmit

SPECIFICATION.

LINEAR AMPLIFIER. Power profile: 50 watts typical output for 10 watts input. Power
gain: 6 dB typical Frequency bandwidth: 430-440 MHz @ -1 dB Power requirements: 12.5
volts @ 8amps for 50 watts output. 13.8V maximum Quiescent current: 1amp nominal @
12.5 volts.
RECEIVE PREAMP. Overall gain: 10dB typical. Overall noise figure: Better than 3.0dB.
Frequency bandwidth: 430-440 MHz @ -1dB. Receive current: 75mA nominal @ 12.5 volts.
GENERAL. RF input connector: 50ohm BNC. RF output connector: 50 ohm 'N' type.
Weight: 4 Kg (8lb. 13oz.) Size: 315 x 142 x 80mm (12 3/8 x 5 5/8 x 3 1/8).

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AUTOMATIC ANTENNA TUNER

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CNA 2002 2.5 KW \$569

A new concept in antenna tuning.
Patent pending. Write for details.



SWR & POWER METERS

Model	Freq.	PWR	Cross-Needle	Price
CN620	1.8-150 MHz	20/200/1KW	yes	99.00
CN630	140-450 MHz	20/200	yes	135.00
CN650	1.2-2.5 GHz	2/20	yes	169.00
SW210A	1.8-150 MHz	20/120	no	99.00

Cross-needle type offer DIRECT readings.



ANTENNA COUPLERS

CL67A	1.9-28 MHz, 500 wpep	135.00
CNW217	Includes SWR/PWR Meter, 200W	165.00
CNW417	Includes SWR/PWR meter, 500W	199.00

High quality couplers, 2 models includes cross-needle SWR/PWR meters.



SPEECH PROCESSORS



RF660	Phasing type dc	109.00
RF440	Phasing type ac/dc	126.00
RF550	Fitter type, ac/dc	169.00
MC330	Speech compressor	99.00

Increase talk power with splatter free operation. RF clipping (not in MC330) assures low distortion. Simply install between microphone and transmitter.

Typical specs RF660:
Talk power: Better than 6dB
Freq. Response: 200Hz-3000Hz at 12dB down
Distortion: less than 3% at 1 KHz, 20dB clipping.
Power Req.: 13.8 Vdc at 50mA.

ROTATORS



DR7500S	Medium Model	189.00
DR7600S	Heavy Duty Model	259.00

* High dependability: weather sealed
* Quiet operation
* Complete with attractive controller

Rotation Torque	DR7500S	DR7600S
Braking torque	500 Kg-cm	600 Kg-cm
	2000 Kg-cm	4000 Kg-cm

COAXIAL SWITCHES

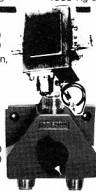
2 Position model CS201	23.00
4 Position model CS401	59.00

Professionally engineered cavity construction, high isolation.
Power rating: 2.5 KW pep, 1 KW CW
Impedance: 50 ohm
Insertion loss: less than 2dB
Maximum frequency: 500 MHz
Isolation: Better than 60dB at 300MHz.

COAXIAL RELAYS

CX2L	100W pep max model	45.00
CX2H	200W pep max model	69.00

Quality change-over relays use 10-15 vdc.
Frequency Range: CX2L 1.8-170 MHz.
CX2H 1.8-450 MHz.



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LEADER TEST INSTRUMENTS

LBO 508A OSCILLOSCOPE



Bandwidth DC-20 MHz.
Sensitivity 10mV/cm.
130mm high C.R.T.

\$899

LDM 170 DISTORTION METER



20Hz-20kHz 0.3% F.S.
Measures distortion,
signal-to-noise ratio,
signal levels.

\$490

LAC 895 ANTENNA TUNER



Built-in SWR and in-line
Watt meter. 5 bands
from 3.5 to 28 MHz.
500W pep transmitter
input.

\$182

LBO 510A OSCILLOSCOPE



20 mV/4MHz.
FET'S input

BUDGET PRICED
\$399

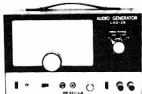
LSG 16 RF SIGNAL GENERATOR



100KHz-100MHz
Solidstate RF signal
generator. Suited for
aligning the IF circuits
in AM, FM and TV sets.

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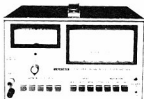
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WITH THE TECHNICAL EDITORS

SUPER QUAD

An unusual stacked coupled quad antenna, which is both simple to construct and has a high gain claimed for it, appeared recently in the magazine OM.

The antenna described by HB9BIX has a claimed gain of 11.5 dB over a half wave dipole and a front to back ratio of 25 dB.

The antenna is a combination of four quads which are coupled together by sharing common elements.

Constructional details are shown in the Figures 1 to 4.

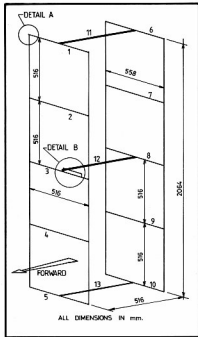


FIG. 1: The general arrangement of the antenna, showing dimensions.

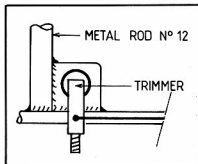


FIG. 2: Part of detail B showing the gamma matching tuning capacitor.

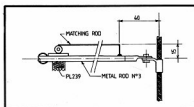


FIG. 3: Part of detail B showing the gamma match.

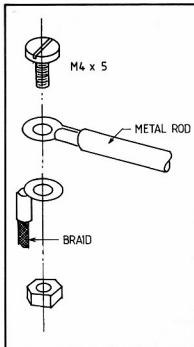


FIG. 4: Clamping method for gamma match.

QSP

SENARC 1980

The 26th national ARRL Convention will be held in Seattle, Washington, from 25th to 27th July, 1980. The theme of the Convention is "World Friendship through Amateur Radio".

POSTAGE STAMP

Most amateurs know something, even if by name only, of the Barlow Wadley receiver. ZSSCO, in a short article, reports that Dr. T. L. Wadley, the "radio wizard" behind the development of this receiver and many other radio developments, has been honoured by a South African postage stamp to appear in February. Dr. Wadley's name is equally well known in the geodetic survey field relating to the Tellurometer system of radio distance measurement.

NEW ITU PREFIX

Radio Communications August 1979 reports the allocation of HBA to H9Z to the Republic of Panama.

NOVICE NOTES

HAVING TROUBLE WITH SOVIET QSLs

It has been pointed out that a large number of VK Novices and some full calls have been omitting to put the operator's name on their QSL cards to the USSR.

A Russian made this statement when asked why we seem to be getting such a poor return from his country. Many Soviet stations are club stations. The operator will of course give his name and it is advisable to carefully note the spelling. Also try to be as accurate as possible as to the time in GMT when the QSO took place.

Many cards have been useless to the Soviets because the Australian amateur has not put the name of the Russian operator on the card. The club then has difficulty in confirming which particular operator was on the air at the time, especially if the times do not correspond.

Whether in fact this is the reason for the sometimes sparse response from the USSR is debatable, but it would certainly seem worth a try when next sending a card for Box 88, Moscow.



PARASITICS

From a report in a DOT newsletter comes a reminder of the danger of parasitics.

This gave details of an investigation into a fault which involved Distance Measuring Equipment and caused some considerable concern. A large amount of time was spent in tracing the fault and considerable inconvenience resulted.

The fault was eventually traced to an amateur transmitter which had developed a parasitic. The fault was subsequently fixed and happily the report records that the DOT staff received full co-operation during their tests.

This incident should serve as a timely reminder not to be complacent about parasitics and spurious radiations. Commercially manufactured equipment is also liable to develop such undesirable radiations and it is upon us to make sure our gear is clean and stays clean. In particular we should check after any modification or any change in operation.

Run a clean station and continually check station performance. The radiation of spurs and parasitics should be avoided. The amateur service is one which depends to a great extent on the ability to keep one's own house in order. Don't let the side down by sloppy maintenance and poor signals.

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IC551 Specifications: □ General: Number of Semi-conductors: Transistors 51, FET 13, IC includes CPU 30, Diodes 114. □ Frequency Coverage: 50 — 54MHz. □ Operational Temperature: — 10°C — +60°C (14°F — 140°F). □ Frequency Stability: Less than ±500Hz after switch on 1 min to 60 min, less than 100Hz per 1 hour after 60 min, and less than ±1KHz in the range of — 10°C to +60°C. □ Antenna Impedance: 50 ohms unbalanced. □ Power Supply Requirements: 13.8V DC ±15%, negative ground, or 117V/240V AC ±10%. □ Power Consumption: Receive at min. audio level DC 0.9A AC 35W, at max. audio level DC 1.1A AC 41W. Transmit in SSB/CW modes DC 3.3A AC 98W, in AM mode DC 3.0A AC 92W, in FM mode DC 3.3A AC 98W.

□ Dimensions: 111mm (H) x 241mm (W) x 311mm (D). □ Weight: 6.1 kg. □ Transmitter: Emission Mode: A3J, SSB (USB/LSB), A1 CW, A3H AM, F3 FM. □ RF Output Power: SSB 10W PEP (1 — 10W adjustable), CW 10W (1 — 10W adjustable), AM 4W (0 — 4W adjustable), FM 10W (1 — 10W adjustable). □ Modulation System: SSB/AM Balanced modulation, FM Variable reactance frequency modulation. □ Max. Frequency Deviation: ±5KHz. □ Spurious Emission: More

than 60dB below peak power output. □ SSB Carrier Suppression: More than 40dB below peak power output. □ SSB/AM Unwanted Sideband: More than 40dB down at 1000Hz AF input. □ Microphone: 600 ohm dynamic or electret condenser microphone. □ Receiver: Receiving Mode: A1 (CW), A3J (USB, LSB), A3H (AM), F3 (FM). □ Receiving System: SSB/CW/AM Single Superheterodyne (Triple Superheterodyne when Pass Band Tuning unit is installed). □ Intermediate Frequency: SSB/CW/AM 9.0115MHz. (When Pass Band Tuning Unit is installed: 2nd IF: 10.75 MHz, 3rd IF: 9.0115MHz). FM 1st IF: 9.0115MHz, 2nd IF: 455KHz. □ Sensitivity: SSB/CW/AM Less than 0.5 µV for 10dB S/N. FM More than 30B S+N/D+N at 1 µV. □ Spurious Rejection: Ratio: More than 60dB. □ Selectivity: SSB/CW/AM More than ±1.1KHz at — 6dB. Less than ±2.2KHz at — 6dB. When Pass Band Tuning Unit is installed: less than 1KHz at — 6dB. FM more than ±7.5KHz at — 6dB. Less than ±1KHz at — 60dB. □ Squelch Sensitivity: SSB/CW/AM 1 µV. FM 0.4 µV. □ Audio Output Power: More than 2 watts. □ Audio Output Impedance: 8 ohms.

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SPECIAL ANNOUNCEMENT: In the future we will be operating under a slightly different format. Arie Bles-VK 2AVA will withdraw gracefully into the background whilst Roy Lopez-VK 2BRL will continue to operate the business using the same good, old fashioned, close-to-the-bone price structure which has proved so successful in the past. In the retailing of Amateur Radio Equipment Sideband Electronics Imports is no "Johnny-come-lately". Arie can be said to have fathered the introduction of commercially built amateur radio equipment into Australia, and to a great extent he has been responsible for ensuring that retail prices have been maintained at a sensible low level. Have a look back through old issues of Amateur Radio over the past 15 years, and more recently Amateur Radio Action, and you will see what I mean.

A MATTER OF PRINCIPLE: Arie's style will be maintained in the future, and under no circumstance will Sideband Electronics Imports assist in, or be a party to, the selling of Amateur Radio Equipment to known radio pirates or to the conversion of relatively high powered Amateur Radio Equipment for use on the 27-MHz CB-band. Such sales and conversions which are both unethical and illegal, may eventually lead to the revoking of the custom by-law which allows radio transceivers for strictly amateur consumption to be imported duty free, causing such equipment to attract heavy import duties with a subsequent increase in retail price. It is an unfortunate fact that some licensed Radio Amateurs involved in the retailing of amateur radio equipment are, for a price, carrying out such illegal conversions and sales. OUR ADVICE — DONT PATRONISE THEM!

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NOVICE SPECIALS — TRANSCEIVERS

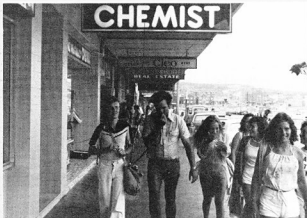
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Arie Bles (VK2AVA) Proprietor

Roy Lopez (VK2BRL) Manager

MORE VK/CB CLUB ACTIVITIES



Although not much information has been forthcoming from the Amateur and Citizens Radio Club (VK/CB) over recent months, nevertheless the members are still very active in the pursuit of our hobby and general public relations.

The photographs tell only part of the story, and depict another excellent example of our younger amateurs assisting interested CBers in attaining an amateur licence.

It is this sort of activity which helps to inform the public of our hobby, and the members of the club are to be congratulated for their efforts.

Wouldn't it be ideal if all of the WIA Divisions and various clubs conducted similar activities on a more regular basis?

It seems only too easy to sit back and let somebody else do most of the work.—VK3UV.

PHOTO No. 1

Garry VK2NZI (left) and Ron VK2DAE (talking) operating hand-held pedestrian or 10 metres walking down Bondi Beach Road shopping centre.

Both have worked into Europe on 10m in this way. They often help out at the weekends giving newcomers a taste of QRP DXing.

PHOTO No. 2

Did you know there are a lot of people in Kings Cross, Sydney—just looking for interesting things to do?

Members of the Amateur and Citizens Radio (VK/CB) Club found lots of interest when they set up this display at the Kings Cross fountain.

Local rangers were pleased to see such a worthwhile display at the Cross and indicated that the group would have no difficulty in obtaining a permit to conduct regular such displays at the Cross.



PHOTO No. 3

Members of the Amateur and Citizens Radio (VK/CB) Club holding a display at Bathurst, central NSW, during the flea market event which attracted hundreds to the area.

The Club also demonstrated amateur radio to those manning a CB display organised by the Bathurst CB Club.

PHOTO No. 4

Neville VK2QF, well known locally in the instructional field, met the members of the Amateur and Citizens Radio Club and set up for display a working home-built AM and CW 80 metre station at Hill-end in the Central West of NSW.



PHOTO No. 5

On the sidewalk of Bondi Beach. The Sydney amateur radio PR team in action.

PHOTO No. 6

Andrew VK2VHH enjoys a nice bus trip using 2 metres FM under full call supervision.

Andrew and his friends, Chris and Dave (both looking this way), you will probably recognise helping at the amateur weekend.

PHOTOGRAPHS FOR AR

Don't keep them to yourself
SEND THEM IN—NOW

AMATEUR SATELLITES

Chas Robinson VK3ACR

OSCAR NET

The OSCAR Net organised by Peter VK4PJ is active on 3680 at 2000 EST on Sunday. There are obviously some propagation problems but no doubt these will be circumvented; perhaps by moving to an alternative band.

OSCAR INFORMATION

There has been an increasing interest in monitoring the ARRL RTTY information bulletins through WIAW and a great deal of hard and original work has gone into the necessary facilities. Alan VK2RX, Charlie VK3ACR and Peter VK4PJ are all active recorders (while I'm working!) and provide me with the latest news—thanks, fellows, for your help. Also, thanks to Charlie and Peter for offering to write these notes for November and December while I am wandering around the world.

SOLAR ACTIVITY

It now appears that the high solar activity a few months ago was responsible for the change of OSCAR 8's orbital parameters which now seem to be settling down to routine once again.

The lower altitude satellites (below 1000 km or so) were the ones affected, whereas satellites such as OSCAR 7 at 1465 km continued on their predicted courses. Now you know why Skylab came down much earlier than anticipated.

OSCAR 7

Perhaps the sunspots have revitalised AO7 as several very good contacts have been made through this satellite. As in earlier years, Mode B is outstanding in its clarity and of course the 20 or more minute pass makes for a really fine QSO. The only problem is its reliability; only observation can tell you whether it is on Mode A, Mode B or just OFF. With no (or rarely) beacons for assistance, OSCAR 7 is now real fun!

Regulators on 7B include ZL1BDU, P29ZFB, VK2RX, VK3ACR, VK2ZI and VK4ZRF. Jim P29ZFB has been a great OSCAR operator during his residence in PNG, being active on Modes A, B and J through both OSCARS 7 and 8. He is returning home at the end of August and hopes to acquire a VK4 call. We shall be looking for you, Jim.

MODE J CLUB

Charlie VK3ACR and myself have received the most attractive Mode J Club certificate as described in last month's notes. Our awards are numbered 78 and 79, which is quite remarkable as the potential for this award in Europe and North America must be enormous—possibly Mode J is more demanding than we thought.

DUAL SATELLITE OPERATION

Every few weeks our two operating satellites are located in a position where com-

munication between them is possible for ten or so visible orbits.

During August this situation obtained and with AO7 performing well, excellent results were achieved. The procedure is to transmit on 432.15 into AO7, the 145.95 downlink from AO7 is received by AO8 and re-transmitted on 29.45 or 435.15 (the frequencies given are nominal centre frequencies of the transponder Modes A, B and J involved).

The distance between the two satellites may be between 550 km (the altitude difference) and 2000 km, and this can be predicted by somewhat complicated calculation.

This is yet another interesting facet of satellite communication.

References: Klein, P. I., and Solfer, R. "Intersatellite Communication Using the AMSAT OSCAR 6 and OSCAR 7 Radio Amateur Satellites." Proc. IEEE October 1976, p. 1526.

"Interspacecraft Distance for Satellite in Circular Orbits and Close Encounter Curves for AO7 and AO8." AMSAT Technical Note, August 1978.

Davidoff, M. "Predicting Close Encounters: OSCAR 7 and OSCAR 8." Ham Radio, July 1979, p. 62.

PHASE III COUNTDOWN No. 1

AMSAT Phase III-A is a high altitude, long lifetime satellite to be launched in March 1980 as a secondary payload aboard an Ariane mission. The European Space Agency will provide the launch opportunity from a site in Kourou, near the coast of French Guiana. The satellite will be inserted into an initial (temporary) elliptical orbit with a projected inclination of 17°, an apogee of 35,000 km and perigee of 200 km. After a few weeks in this orbit when the spacecraft has stabilized and the onboard microcomputer has determined that the satellite is in the proper orientation to the sun, to the earth, and at the proper position in its orbit, a one-shot onboard perigee kick motor will fire (a solid propellant motor that will burn for one 20-second period). This will lift the perigee to its projected final 1,500 km altitude and raise the inclination to 57°. This orbit will have a period of approximately 660 minutes and a longitude increment of about 165° west per orbit. Please note that these figures are only preliminary estimates; the final data cannot, of course, be known until precise measurements are made after launch. These figures, however, are suitable for giving the potential satellite user a sense of what the orbit will be like.

This orbit will favour the Northern Hemisphere at first, as the apogee after the perigee kick motor firing will occur

at about 26° N latitude. Over the course of the first two years, the latitude of the apogee will drift gradually northward to its highest point, 57° N latitude. From this time on the apogee will drift southward until after another year or so it will occur over the equator. From this point on, the Southern Hemisphere will be favoured and the second of the AMSAT Phase III missions will have been launched, again initially favouring the Northern Hemisphere. Throughout its lifetime, however, the AMSAT Phase III series satellites will be accessible throughout the world at some point during the day; those regions falling under the illumination at apogee will simply have greater access times.

AMSAT Phase III-A will carry a Mode B transponder. Its uplink will be in the 70 cm band and downlink in the 2 metre band. The passband will accommodate SSB, CW, SSTV, RTTY, and whatever digital modes are approved for use through the satellite. There will be several Special Service Channels that will deal exclusively with such areas as data exchange, education, scientific study, officially authorised traffic, and general interest/information bulletins from throughout the world. A general beacon for routine telemetry and Codestore information, and an engineering beacon for more sophisticated management purposes will be at the very edges of the passband. To access the satellite, a user will need about 1000 watts ERP on 70 cm—but high gain antennas to achieve this effective radiated power economically are feasible as near apogee (plus or minus 3 hours) AMSAT Phase III-A will move very slowly and through a comparatively small arc; tracking will be a fairly simple task.

From Steve Place WB1EYI, AMSAT Phase III-A Education Special Service Channel Co-ordinator.



With reference to Bob VK3ZBB's article on the new Phase 3 project, further information, via Harry JATANG's newsletter, has come to hand and is as follows:

Beacons for Phase 3 spacecraft have been established: General Beacon 145.810 MHz, Engineering Beacon 145.990 MHz.

AMSAT advises that the Phase 3 Flight Ready Spacecraft has to be at the launch facility by 3rd December, 1979, and launch is still scheduled for 5th March, 1980. Checkout of the Flight Computer is being accomplished and everything thus far looks like a goer.

The Flight Transponder is coming along well and should meet schedule requirements. As of now 4,077 solar cells are in hand and 39 battery cells. Preliminary indications show we should have a very good positive power budget for the Phase 3 spacecraft. This is great news.

Preparation of back-up documentation for the WARC delegation on Amateur Satellites is under way at AMSAT and should be on schedule.

Phase 3 solar panels are undergoing thermal testing in vacuum chambers and vibration tests are completed and have proved very, very good. The wire bundle harness for the spacecraft is also progressing well and will meet schedule. The IHC prototype is in the debugging stage and all is going as expected. The 435 MHz uplink antenna is in the design and testing stage. Spacecraft modules and structure are in for the final paint process.

Biggest problem facing AMSAT at this time is the long lead time required for some space qualified components. Delivery of these items will not meet our target date. Don't give up, AMSAT is working hard to overcome these problems.

Harry JA1ANG asks — Are we ready for Phase 3-A satellite? Although we will not know for sure until about the end of November, or even later than that, "Phase 3-A" is due to be launched on March 5th, 1980, from ESA's (European Space Agency: member countries are Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. Austria, Canada and Norway participate as observers) launch site or Kourou, French Guiana (QTH: 5.4N/52.7W). The launch vehicle: "Ariane"—a three-stage \$888 million rocket, 154 ft. long. Launch time: Approximately 9.00 a.m. local time. FY7 local time — minus 4 hours UTC. So it will be around 1300 UTC, which will correspond to our evening of March 5th, 1980.

Please Note that all information mentioned here is subject to change.

Uplink Frequency: 435.277-435.153 MHz (centre of uplink band: 435.215 MHz).

Downlink Frequency: 145.838-145.962 MHz (centre of downlink: 145.900 MHz).

ERP required when satellite is at or near apogee: Approximately 1,000W. Note: To those who have AO-7 Mode B experience, this will mean that you will need 10 dB more effective radiated power.

Strength of downlink signals: Approximately 7 dB less than those from AO7 when in Mode B.

Modes usable: A1, A3J, SSTV (using SSB) and RTTY (using A1 — either "mark" only or "space" only — ref. AO-7's RTTY (excluding 435.1 telemetry) telemetry, which is not frequency shift keyed, but "space" only "keyed").

The Phase 3-A satellite, after leaving the launch vehicle, will go into a "transfer" or "interim" orbit. The inclination will be about 17 degrees apogee approximately 36,000 km and perigee approximately 200 km. It will stay in this "transfer" orbit for about 10 to 14 days, then the KICK MOTOR, a small rocket on board the satellite, will be fired to put the satellite into its final orbit of: inclination approximately 57 degrees; apogee approximately 36,000 km; perigee approximately 1,500 km; period approximately 661 minutes (approximately 11 hours).

WARNING

While the satellite is in its interim or "transfer" orbit all official ground stations will be reading the telemetry and will make RANGING measurements using the transponder. While this is being done, during the first 10 to 14 days, general users are warned "not to use the transponder" under any circumstances.

The above is very important, because based on these preliminary measurements, the timing the firing of the kick-motor will be determined. The kick-motor uses solid fuel, therefore it is going to be a *one time only firing*. In other words, they will not be able to "do it over again" (once fired, it will burn to the end — no stopping, like in the case of liquid fuel) — therefore it is essentially important that they "do it right" and to enable them to do so, a "quiet" transponder will be needed during the first 10 to 14 days after launch. So, *no uplinking by general users, PLEASE!*

Please listen to the beacons: one on 145.810 (which may not be on for the first several days, and the other (the ENGINEERING BEACON) on 145.990 MHz, which will be turned on as soon as the satellite becomes available to general users it will be "announced" over the general beacon on 145.810 MHz, by CODESTORE.

Also, listen to the GENERAL BULLETIN, which will be on approximately 145.965, on one of the SPECIAL SERVICE CHANNELS (SSC).

The following is the proposed "band-plan" for the satellite (keeping in mind that this could be changed: Downlink 145.838 to 145.880 MHz, CW only; 145.880 to 145.920 MHz, mixed CW and SSB; 145.920 to 145.962 MHz, SSB only; RTTY (mark only or space only, CW type) on 145.880; SSTV (using SSB) on 145.920.

The transponder passband will be approximately 150 kHz wide, BUT please refrain from using the band edges below 145.838 and above 145.962 BECAUSE there will be SSCs (Special Service Channels) reserved for bulletins, code practice, scientific, data and educational transmissions, therefore *no uplinking below 435.153 and above 435.227 MHz!* Incidentally, sidebands will be "inverted" as in the case of AO7's Mode B and AO8's Mode J. Thus, uplinking will be on USB, and the downlink will become LSB.

RUSSIAN SATELLITES

Information has been supplied by Bob WA6ERB and Miki JR1SWB, informing us that about a month ago JAMSAT's JR1WYB, who is very good at Russian, visited RS3A (formally UK3ACM) in Moscow. He learned that both RS3 and RS4 would be launched by the end of the year, and these two satellites would piggyback with certain Cosmos Satellites. So their orbit will likely be the same as RS1 and RS2. They will have Mode A trans-

ponders and downlink would be 29,400 to 29,450 for RS3 and 29,450 to 29,500 for RS4, uplink frequency is not certain. They will have sophisticated AGC system and commandable pad (attenuator) to avoid overload as was noted in RS1 and 2.

The most unique aspect of these birds is they will contain "Robot" system, which responds to the signal of ground station. Example: When I transmit on a particular frequency, RS3 of VK3ACR K, the Robot will respond as VK3ACR de RS3 ur 579 K. No further information is known on the system, but to say the least, it's very impressive.

AOA AWARD

(Oscar Satellite Communications Achievement Recognition.)

I have just received from Colin VK5HI (AMSAT Awards Manager) a list of the VKs who have qualified and received their certificates. These awards can be obtained by those amateurs who can confirm by QSL cards two-way communication with six different VK call areas and two countries. These cards must be sent to Mr. Colin Hurst VK5HI, 8 Arndell Road, Salisbury, SA, accompanied by postage for return of cards and certificates. ZLs are also eligible. To date only 14 of these awards have been issued in VK, these being:

C. J. Hurst VK5HI, R. Galle VK5QR, G. Wiseman VK5ZAD, R. Arnold VK3ZBB, A. Downie VK4ZRF, M. Willes VK4ZIL, J. Roberts VK4TL, A. Hennessy VK2RX, A. Squires VK5ZWO, F. W. Boundy VK2ZFX, J. Beckitt P29ZF, G. Ratcliff VK5ZGC, C. H. Thorpe L40018, C. J. Robinson VK3ACR. ■

ORBIT PREDICTIONS — NOVEMBER 1979

OSCAR 7				OSCAR 8			
Date	Orb. Z	Eqx Z	Eqx =W	Date	Orb. Z	Eqx =W	Eqx =W
1	22692	0030	74	8444	0046	58	
2	22705	0125	88	8458	0051	60	
3	22717	0024	73	8472	0057	61	
4	22730	0118	86	8486	0102	62	
5	22742	0018	71	8500	0107	63	
6	22755	0112	85	8514	0112	64	
7	22767	0011	69	8528	0117	66	
8	22780	0105	83	8542	0122	67	
9	22792	0005	68	8556	0128	68	
10	22805	0059	82	8570	0133	70	
11	22818	0153	95	8584	0138	71	
12	22830	0053	80	8597	0000	47	
13	22843	0147	94	8611	0005	48	
14	22855	0046	78	8625	0010	49	
15	22868	0141	92	8639	0015	50	
16	22880	0040	77	8653	0020	52	
17	22893	0134	90	8667	0025	53	
18	22905	0034	75	8681	0031	54	
19	22918	0128	89	8695	0036	55	
20	22930	0027	73	8709	0041	57	
21	22943	0122	87	8723	0046	58	
22	22955	0021	72	8737	0051	59	
23	22968	0115	86	8751	0056	61	
24	22980	0015	71	8765	0101	62	
25	22993	0109	84	8779	0107	63	
26	23005	0008	69	8793	0112	65	
27	23018	0102	83	8807	0117	66	
28	23030	0002	67	8821	0122	67	
29	23043	0056	81	8835	0127	68	
30	23056	0150	95	8849	0132	70	

SUMMERLAND AMATEUR RADIO CLUB CELEBRATES LISMORE CENTENARY

1979 is a big year for Lismore, the queen city of northern New South Wales, and the home of the Summerland Amateur Radio Club.

This year is the centenary of local government in Lismore, and while celebrations have been planned to take place throughout the year, the major effort was concentrated during the week commencing 28th May, 1979. Many local organisations have participated in the celebrations, and the Summerland Amateur Radio Club decided to do its bit and at the same time achieve some good PR for Amateur Radio.

After some preliminary talks with the Lismore City Council, the Club was allotted a lecture room in the City Hall which would provide adequate security and give us sufficient room to set up a display on Amateur Radio. The project involved a great deal of preliminary planning, so we set up a sub-committee and got to work. With much help from many willing Club members, we assembled a large range of amateur gear dating from 1926 to 1979. As a result, we were able to set up a display representing a history of amateur radio from very early days to the present time. The ancient gear was complemented by a fine display of modern gear provided by our good friend Ken Ayers, the proprietor of Amateurs' Paradise, Southport.

The actual assembly of the display took place on Saturday, 26th May, 1979, when the gear was set up in historical sequence to form a continuous display around the hall. In one section we assembled an operating station under the Summerland Amateur Radio Club call sign VK2AGH. This section included fully operational HF, VHF, RTTY and ATV, with the odd micro-processor thrown in for good measure — home brew of course. The Lismore City Hall took on a new look, with numerous antenna arrays sprouting from various vantage points, and the experience gained by our WICEN group from many previous exercises really paid off in setting up this part of the display.

The official opening of the Club display took place at 0900Z on 28th May, 1979, and it was a great public success from the outset. The display was crowded on each of the week nights, and on the big day, Saturday, 2nd June, when thousands of people came to Lismore for the official celebrations throughout the day, it was necessary for Club members on the supervision roster to regulate the people admitted to the display room in order to keep the numbers in the room to manageable proportions.



PHOTOGRAPHS:

TOP: The Summerland display.

CENTRE: Amateurs Paradise's display.

RIGHT: Fred Herron VK2BHE, the club co-ordinator, with old and new equipment.

The result of the exercise was a tremendous boost to Amateur Radio on the North Coast of New South Wales. The Club achieved priceless publicity and great PR in the local media, as well as numerous enquiries and new applicants for our Novice classes. At the same time, the Summerland Amateur Radio Club played its part in the community effort to celebrate 100 years of local government in Lismore, one of the oldest provincial cities of the State.

Fred Herron VK2BHE, Summerland Amateur Radio Club. ■



WFF UHF

An expanding world

Eric Jamieson, VK6LP



Forreston, S.A. 5233

AMATEUR RADIO BEACONS

Freq.	Call Sign	Location
50.001	WA6MHZ	San Diego
50.004	PY1RO	Brazil
50.010	HL9TG	Seoul *
50.023	H2P2R	Hall
50.025	GY5RC	Jamaica
50.030	HC1JX	Ecuador *
50.030	KL7CQG	Alaska
50.030	ZS6PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.050	ZS6LN	South Africa *
50.060	WA1ENX	Maine *
50.075	HK3J	Columbia (repeater)
50.080	T12NA	Costa Rica
50.088	VE1SX	New Brunswick
50.091	WA6JRA	Los Angeles *
50.092	W7KMA	Oregon *
50.093	WA0FTA	Michigan *
50.098	K7IHZ	Arizona *
50.100	ZS6HVB	South Africa *
50.101	FO8DR	Tahiti *
50.104	KH6EQI	Pearl Harbour
50.110	KG6JJH	Gum *
50.110	JD1YAA	Marcus Island *
50.110	KH6	Marshall Islands *
50.110	KG6RO	Salpan *
50.110	AL7C	Alaska *
50.500	SB4CY	Cyprus
51.999	JY8PV	New Hebrides
52.000	VK6BC	Casie Base
52.200	VK6VF	Darwin
52.300	VK6RTW	Perth
52.350	VK6RTU	Kalgoorlie
52.400	VK7RNT	Launceston
52.450	VK2WI	Sydney
52.500	JZ1GJY	Nagoya
52.500	ZL2VNH	Palmerston North
52.510	ZL2MHF	Mt. Clunie
52.580	VK6RTW	Waikato
52.900	VK6RTT	Carnarvon
53.000	VK6VF	Mt. Lofy
144.010	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.600	VK6RTT	Carnarvon
144.700	VK3RTG	Vermont
144.800	VK6VF	Mt. Lofy
144.900	VK7RTU	Ulverston
145.000	VK6RTV	Perth
145.100	ZL2VHF	Auckland
145.150	ZL2VHF	Wellington
145.200	ZL2VHF	Wellington
145.250	ZL2VHF	Manawatu
145.300	ZL3VHF	Christchurch
145.400	ZL4VHF	Dunedin
432.400	VK4RBB	Brisbane
432.475	VK6RTW	Ulverston
433.000	ZL2UHF	Wellington †
433.100	ZL1VHF	Auckland †
433.150	ZL1VHF	Waikato †
433.200	ZL3UHF	Christchurch †
433.250	ZL2VHF	Manawatu †
10370	ZL2UHF	Wellington †

* Denotes attended operation.
† Denotes new listing.

In response to a request from Lyle VK2ALU, the New Zealand 433 MHz and 10 GHz beacons have been included again. Lyle heard ZL2VHF on 433.250 MHz earlier this year, and points out it should be possible to hear some of these beacons when conditions are suitable, particularly from VK2, 3 and 4. No real objections are raised to their inclusion—they were dropped some time ago because most appeared to be solely for local reception rather than anything across the Tasman,

most running low power with directional antennae. However, as anything seems possible at times these days they are included for your continuing interest.

The ZL1VHF beacon on 433.150 uses an omnidirectional antenna of 10 watts, and is reasonably well situated. Tom ZL1TGH advises there have been some improvements to 433 MHz gear in New Zealand since the big trans-Tasman opening this year, and in his own case runs 50 to 100 watts and he and ZL1UBJ are keen to work VK. Other stations with a reasonable set-up include ZL1TAB, ZL1TFZ, ZL1TKU, ZL2TYT, ZL2TFJ (100W), ZL2TAL, ZL2BW, ZL2BGC, ZL3AAD, ZL3AR and ZL3AQ.

So there you have it—there are stations in ZL prepared to do something about contacting VK. It is to be hoped there are similar stations in VK, and that everything will not be left to chance!

10 GHz ACTIVITY

Lyle VK2ALU in his letter reports his main activity is now taking place on 10 GHz, whilst further activity is undertaken to get the 432 MHz EME installation in Dapto shifted.

A test on 10 GHz was made on 25-8 between VK2ALU and VK2AHC over a distance of 112 km from Mr. Gibraltar near Bowral and Terrey Hills, north of Sydney. Very solid signals were received on both ends using FM voice communication. A 2 metre liaison link was used, but signals on 3 cm were as loud if not louder than on 2 metres.

A fixed attenuator had to be placed in the IF channel at ZL2ALU's end to bring the S meter pointer "off the stop".

A pleasing feature was the accuracy of pointing at 2ALU's end, with the compass directed positioning being "spot on". VK2AHC was able to reduce to his 15 inch diameter dish without much degradation of signal strength. This was the first over any distance for 2ALU's new portable installation. More difficult paths are now under consideration . . . The Propagator.

6 METRES AS SEEN FROM SA

It would seem that local DX to the lower placed States has not really receded ahead after the big start on 26-8. Several JA openings have since 4-9 from 0900 to 0645Z to JAT and JAZ. Some assorted 50 MHz activity also but only JA. Perth stations started with some good early evening TE on 6-9 with VK6WD, etc. They have had several JA openings since. Northern areas of VK6, VK2, VK4 and VK8 have had consistent openings for about 6 weeks, but the poor ES conditions have kept out the possibility of extensions. Afternoon TE is still poor across Australia, some change should come early October.

Generally the solar flux has peaked over 215 in recent days, so long distance F layer could be the next area. On 23-9 MUF to Central America was determined to be at or above 48.1 MHz from 2350 to 0055Z. At said frequency, a repeater output was heard peaking in excess of 5 uV. Most of the time it simply cycled. Also CW identified as "VPS" appeared on 44.250 MHz. Several other signals were received within the range and identified from earlier openings in April. Times and stations all corresponded to those heard between April 2 and 17 of this year. No reported hearings on 50 MHz from VK3 and VK5. For some time now 39 to 40 MHz police transmissions from the USA have been appearing around 2100Z and disappearing around 0300Z. Highest MUF to there, so far, is about 42 MHz to VK5. VK video has been received in W6 many times but nothing to 50 MHz. One further point about 23-8, JASCMO worked several LU stations on 50 MHz about 0100Z.

OVERSEAS

Generally with the increase in countries available things have not been dull overseas. If you live in JA then just recently you could have worked the following: VK4, VK6, VK8, P29, K29, K36, K46, H44, YJ8, P29, K46, HS1, J41, SW1, A25 and 302, a total of 14 countries and only from the Pacific area.

NSDX has had a successful DXpedition so far to 5W1 and A35. As 5W1CF he worked at least JA, K66 and YJ8 up to 17-9. As A35DX he has worked JA at least but quite a few missed out from

other areas. A month later would have seen propagation to W, etc. To the Caroline Islands K66IN (JA1NVG) heard 5W1CF on an IC502 and whelp. Also from Ponape he worked many JAs. Also K66P and K66CW active but only seem to work JAs. News also comes that K9PNT/DU2 can now operate on 52 MHz with an FT620 and home brew quad antenna. HS1VHF has been working very consistently to JA, K66 around 1500 and 1600Z. Some late afternoon openings also, most times 50.135 MHz is used. FO8DR was heard recently (25-8) in Japan. KX6SG appears to be WA5CXE/KX6. Any confirmations?

A rumour is about that VU2RM doesn't really have a 6 metre allocation and has ceased operation. Anyone to confirm? From Liberia there seems to be some 6 metre activity. ELPB is bearing towards Asia around 0900 to 0930 on 50 MHz. YJ8PD recently scored K62ZZ (IC502 and whelp) and 5W1CF on 14-9. Also KX6BU heard up north calling CQ on 14-9 on 52.050 CW. And news from VSBK in Hong Kong—he will be taking delivery of the new Microwave Modules 6 metre transverter soon. General allocation in VSB is 50.000 to 51.150 MHz plus spot allocations on 50.025 to 51.100 52.100 SSB. It will be interesting to see how the new transverter goes when it arrives in Australia. And the ZLs will soon know, either way, whether they will have a temporary 50 MHz allocation. The announcement will have been made long before you read this. And finally Lord Howe Island has been active over 27-8 on 50 MHz, 31-10, when a DXpedition led by Steve VK3OT with VK2BYX/ATZ following. Bit late to press but at least the CQ WW DX phone contest will get a blast. Should be prime time for USA DX though. QSLs to VK3OT.

NEW BEACON FOR VK5

I have been advised a new VK5 beacon is ready for use and will hopefully be on in October. Already it has been running under temporary conditions and looks to be quite promising. Call sign has not been allocated but may be VK5RTS. Following are the details: Transmit frequency 52.150 MHz, with 800 Hz FSK (upshift on keying). Power of exciter is 12 watts RMS. At present it will run with 6 elements at about 12 metres with initial beam heading of 65°T for the present equinox. A separate FA stage is under development and this is aimed at giving power in the region of 50 watts. Combined with the beam and assured take-off the system will have an ERP on 500 to 600 watts. Plans indicate that at later date either switchable omnibeam programmes or programmable beam headings will be installed to complete the beacon. Any details of other "ERP" beacons would be appreciated. It would seem with low angle F layer, if you don't have a Ch. 0 nearby, then relying on beacons with low ERP isn't good enough. Studying band conditions via backscatter off layers is reasonable with reasonable ERP. The location of the new VK5 beacon has not been disclosed at this writing, but it has been heard loud and clear at the VKSLP establishment!

I thank David VK5KK for helping to fill in the blanks of the VK5 news, especially during the daytime hours when I am not home. . . . SLP.

432 MHz AGAIN

As reported last month, the 432 MHz record has been taken out of the hands of VK6XY and VK3ZOV by the contact made between mainland USA and Hawaii. Also I reported Graham VK6GB was starting to try to cover the distance between Darwin and Japan on 432 MHz. The next exciting hope we can see would be for Aub VK6XY or someone in VK6 to work into New Zealand, which is probably not impossible but would require a chain of correct conditions and circumstances which do not occur very often—note the severe attenuation of signals outside of a relatively narrow beam width for the contacts earlier this year between VK2 and ZL. The present record when confirmed will stand around 4000 km.

NEW BEBRIDES

The special amplifier-driver built by David VK5KK was sent to Peter YJ8PD on 17-9 to allow him to drive his 3-500Z amplifier to 500 watts or so. So far no reports at time of writing as to how it may be operating, but I am sure Peter will soon

be making good use of the amplifier, in talking to Peter on 20 metres (?) he informs me KHE6QI beacon is often audible around 0800Z at S9 and for up to 3 or 4 hours at a time! He also advises working many JAs on FM, and that both 3D2AZ and 3D2CM are operating on 6 metres. The YJ8PV beacon on 51.999 uses a vertical J beam, and as reported earlier is to be shifted later to Peter's 5TH and will be switched off when Peter is operating on 6 metres in an effort to reduce the amount of "crud" on the band. Other contacts from New Hebrides on a regular basis on 6 metres are to JA and KHE6, although coconuts raining on to the roof of Peter's shack at times raise the level of background noise, as I was able to hear when talking to him recently!

IT'S TEN YEARS NOW . . .

That's right, with this issue I have completed ten years of reporting VHF/UHF activities in "Amateur Radio". Whilst there is nothing particularly marvellous about that, a lot of things have happened in that period, and with the Editor's kind permission I hope soon to be able to bring you a special article on the highlights seen over that period of reporting, and believe me, there have been quite a few.

Most of all I want to thank my many friends who over the years have consistently supported my efforts, both with information and words of encouragement, but more on that later. I also thank the various Editors of AR in that period — I feel they have been very good to me, giving me a virtual free hand in the publication of material, and for this I am indeed grateful.

So there's a decade gone for a truly dedicated VHF/UHF operator, and that's what I really am, and I enjoy being such, and have tried and will continue to try to do everything possible to extend the interests of activities on those various bands in the future, whether I am writing these notes or not.

THIRTEEN ELEMENT BEAMS

From time to time I am being asked about the pair of 13 element beams I have built for two metres. That I ever needed to build them was brought about by the crash of my pair of 16 element beams some time ago due to the breaking of a guy wire on the crank-up tower. Whilst wondering what would be the best approach to the problem of reconstruction, Bob Stone VK5BP came back from USA with glowing reports of a newly developed KLM type yagi of 13 elements, the performance of which was equal to or slightly better than the former 16 elements. Having nothing to lose, I built a pair of them.

There is no doubt about it, they really do work and work well. At first when number one was built and pointed up in the air from a ladder as a platform for checking SWR it gave a rather poor result. It was thought that changes to the element lengths would be necessary, with the forward element of the driven pair having the most effect on the SWR. It was found they needed to be lengthened!

The following week the antenna was mounted on the stepladder again, this time with the ladder slightly more upright, and it was found the SWR was really good. Wondering what I had done differently, I came to the conclusion that the peak between the SWR bridge had been within the plane of the elements owing to the slightly larger than usual slope of the antenna. Now with the bridge out of that area the SWR was excellent, being better than 1.05 to 1 up from 144 to 147 MHz and a rise to 1.1 to 1 up to 148 MHz. And that's a wider bandwidth than the original design seemed to indicate. The second antenna was now placed in the testing position with exactly identical results. The next paragraph gives you a brief outline of the various parameters.

Boom length 21 ft. 10 in., diameter 1-5/8 in., elements 3/8 in. dia. In driven elements, phasing straps 1/2 in. wide, stacking distance 13 to 14 feet vertically, feedpoint 20 ohms balanced, and required 4 to 1 balun to match 50 ohm coax. Two stacked vertically as indicated should give 17.5 to 18 dB gain. Bandwidth 144 to 148 MHz with SWR 1 to 1.1 or better, although the original design said optimum performance was from 144 to 145 MHz. There are a few critical factors in their con-

struction as with most of the KLM type designs which are only reproducible in performance with extreme care; if you are a sloppy builder then don't start building one!

As you need the full information to make one or two as required I am prepared to make the information available to anyone interested who sends a stamped addressed envelope, preferably of the 9 in. x 4 in. standard envelope to save excessive folding of the paper, plus a 20c stamp to cover the cost of copying.

CLOSURE

As other writers of similar columns are finding, news is still scarce due to band conditions, but hopefully matters will improve for next month's copy, as this will cover the equinoctial period. So until then good DXing to everybody, and please take off a little time to write and tell me what you have worked.

Closing with the thought for the month: "To be agreeable in society, you must consent to be taught many things that you already know."

73. The Voice in the Hills.

LATE NEWS

T12 STATIONS FOR 6m

Carlos T12CF, in Costa Rica, expects to be operational on 6m in time for Christmas 1979. Equipment on order is an FT901 with 3 band transverter and a 100W output linear into a 7 element KLM beam. He has been briefed on VK TV frequencies, VK 6m frequencies and the 28.805 MHz net. T12TE also expects to be operational with the same gear (without the linear) around Christmas.

SMIRK

SMIRK membership is open to all keen 6 metre operators who may join by listing details of three DX 6 metre contacts. With 6 metres opening to Japan, this is very simple. The list, together with \$4 US, should be sent to the Secretary of SMIRK, Ray Clark K5ZMS, at 7155 Stonefence Drive, San Antonio, Texas, USA, 78227. You will then receive by return airmail your SMIRK membership certificate.

SMIRK print a quarterly newsletter which is full of information about 6 metre activity. To receive this newsletter send with your membership some envelopes which are big enough for three or four sheets of foolscap and enclose for each envelope \$1 US for postage. This is pretty good value for members of SMIRK.

From the latest newsletter come the following extracts of the results of the SMIRK Party Contest and the updated membership list.

5th Annual SMIRK Party Contest. Overall winner Gary RF W6XJ.

The winning score was 22,720 points. Well done, Gary.

New Hebrides, YJ8OT, 58,200 points.

Australia — Victoria, VK3AUI, 5 points; VK3NM, 3 points, South Australia, VK5KK, 13 points; VK5LP, 7 points.

It certainly helps to have some good openings. Top scorers in each call area have received a certificate.

SMIRK LIST — UPDATE

JAPAN			
JH1RDU	3395	JG3ESS*	3336
J1K1KD	3392	JG3FUV	3259
JK1PDC	3253	JK1JUC	3283
JK1PVI	3349	JK3KZO	3284
J1L1MX	3387	JH3WXB	3278
JL1RLT	3339	JASCMO	3297
JR1JSV	3264	JASFOR	3235
J24VFH	3233	JR6SMD	3231
J2E2LK	3386	JATLDA	3349
J24VYB	3350	JH7SYN	3338
J24VYB	3359	JH7TWR	3362
J23BPV	3384	JABXKB	3342
JF3BUI	3394	JABFFA	3346
JF3XAA	3293	JABGQV	3343
JF3XRX	3279	JABJLY	3391
JG3ALJ	3280	JABRKC	3340
JG3BBG	3281	JABVCM	3345
JG3CJY	3338	JH1WV	3338
JG3CQH	3337	JHBNKN	3341
JG3CJV	3282	JABRYL	3274
JG3ESS*	3172		

NEW ZEALAND

ZL4LV	3377		
AUSTRALIA			
VK2ZDI	3151	VK4PU	3154
VK2ZDY	3166	VK4ZIM	3200
VK2ZRU	3351	VK5EV	3289
VK3BMV	3302	VK5ZMF	3214
VK3YFU	3286	VK7ZAJ	3161
VK3YLD	3301		
OTHER			
HS1WR	3311	KX6BU	3276
KH6JHM	3400		

Plus many others in the USA, Central and South America and Europe.

The list is an update of new SMIRK members from 5th May, 1979 to 25th August, 1979.

* As listed by SMIRK.

List courtesy of Lionel VK3NM, SMIRK 3067.

INTRUDER WATCH

Alf Chandler, VK3LC

A LAST MINUTE APPEAL

DO you want to see your Intruder Watch collapse? As far back as June this year I intimated that, because of growing commitments at home, I will have to relinquish my position as Federal Intruder Watch Co-ordinator.

The months since have worsened, and it is vitally necessary for me to do so as at 31st December.

So far nobody has come forth to take my place. There are over seven and a half thousand members in the WIA so surely one out of that number could find the time and the dedication to take on the job. It is a reflection of the apathy of members, don't you think? I have intimated that I would help and instruct my replacement in the initial stages, and also carry on the dubbing of the WIA identification tapes. I shall also keep operating the IARU Region 3 co-ordination.

PLEASE, WILL SOMEBODY RELIEVE ME?

Alf Chandler VK3LC.

INTERNATIONAL NEWS

WARC 79

Commenced 24th September. Scheduled to finish 30th November. 147 countries are expected to send delegations and 38 international organisations will be sending observers. The total number of people will be well over 1,700. Some 14,000 proposals were received from ITU member countries to revise or modify the Radio Regulations.

K25

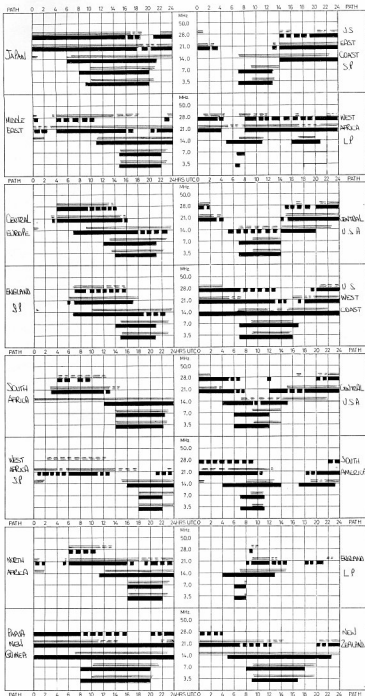
A report in August 1979 World Radio says that after the end of September the Canal Zone ceases to be a separate country. All K25 operators will have to qualify for an HPI licence to stay on the air.

ILLEGAL OPERATIONS

A feature article by NAXX in CQ for September 1979, reports that the illegal use of high-powered equipment on frequencies in, and around, the citizens band has grown significantly in recent years (in the USA). Attention was drawn to so-called "HF" operations between 27.1 and 28 MHz. In both cases the illegal operations were attributed to the easy availability of amateur-type equipment to the public. The article states that operations of this nature are expected to increase with ever growing number shifting to the 10m amateur band.

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



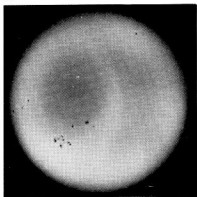
LEGEND

FROM WESTERN AUSTRALIA
FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY
LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY IPS, SYDNEY

ALL TIMES UNIVERSAL UTC (GMT)



Sunspots visible 0436 UTC, 30th September, 1979. Photo by G. Spratt.

STOP PRESS

IPS Daily Report
Phone (02) 269 8614
Details in December AR.

PROJECT ASERT - PROGRESS REPORT

In preparation for the forthcoming VHF propagation activity the Project ASERT Committee has taken steps to introduce four additional monitoring stations in New South Wales, Queensland and New Zealand. It is hoped that these stations will be operating during November, thus providing data throughout the summer period of high VHF activity. The three existing monitoring stations located in Tasmania, South Australia and Victoria have been producing information throughout the winter period and this is currently being analysed by the Committee. A detailed report on the results during the winter period will be published in "Amateur Radio" in the near future.

The Committee again expresses its appreciation to members of the Institute who are supporting the Project through construction of equipment and surveillance of the monitoring stations.



Les Janes VK3BKF installs a 2m antenna at Port Melbourne for Project ASERT.



ATLAS 110 LINE

First came the receiver, The Atlas RX-110... A performance plus Amateur Band Receiver incorporating high sensitivity, selectivity and dynamic range. Couple that to a "bolt-on" Transmitter Module, the Atlas TX-110H... which has low spurious and harmonic radiation, high carrier and unwanted sideband rejection and 250 Watts in-pul. You now have the unbelievable Atlas RX/TX-110H top performance transceiver which costs... NOT \$950... NOT \$750... NOT even \$650 but just **\$555**

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HF Wadley Loop Communications Receiver.

Manufactured by Morantz Japan the C-6500 is a state-of-the-art HF receiver covering 0.5-30 MHz in 30 x 1 MHz band segments. Its sensitivity is extremely high at 0.5uV and selectivity is 4 KHz on SSB and 7 KHz on AM.



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Still the best value in Programmable Scanners, the SX-100 covers the 6.2 and 70 cms Amateur Bands over 32,000 other Frequencies including Channel 0 and Channel 5A TV Sound.

Amateurs can use the SX-100 to monitor band conditions using beacons etc. Firemen can keep informed by listening to fireground frequencies. CBers can monitor UHF CB Channels. Fishermen can monitor VHF marine and Emergency frequencies. Servicemen can use the SX-100 to check virtually any commercial two-way frequency with its 32,000 channel coverage.

- Covers 60-54, 140-180, 410-514 MHz.
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- 240V AC and 12V DC operated.
- Frequencies are programmed using built-in keyboard.

SKY ACE R-517... \$104.

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- MBK Mobile Bracket Kit \$14.00
- DL-300 300W Dummy Load \$32.00



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- MFJ-982 1.5KW Ant. coupler/SWR/Power Meter 6 Pos. Co-Ax SW for Bal and Un Bal Line (Inc. Balun) \$233.00
- MFJ-981 1.5KW Ant. coupler/6 Pos Co-Ax SW for Bal and Un Bal Line (Inc. Balun) \$199.00
- MFJ-949 300W Ant. coupler/SWR/Power Meter/200W Dummy Load/Co-Ax SW for Bal and Un Bal Line (Inc. Balun) \$186.00
- MFJ-948 300W Ant. coupler/SWR/Power Meter/Co-Ax SW for Bal and Un Bal Line (Inc. Balun) \$145.00
- MFJ-943 300W Ant. coupler for Bal and Un Bal Line (Inc. Balun) \$115.00
- MFJ-901 250W Ant. coupler for Bal and Un Bal Line (Inc. Balun) \$97.00
- MFJ-900 200W Ant. coupler for Unbal Line (No Balun) \$63.00

Tunable Active SSB/CW Filters

- MFJ-752 Dual TUNABLE ACTIVE SSB/SW FILTER inc. Peak/Voice, Noise Limiter, and Two Variable Frequency Filters. \$145.00
- MFJ-751 Tunable Active SSB/CW Filter. \$115.00

Electronic Keys

- MFJ-481 THE GRANDMASTER MEMORY KEYS, stores 2 x 50 character messages 8-50 WPM. \$145.00
- MFJ-482 Econo Key, built-in Paddle, Weight and Speed control, 8-50 WPM, send state keying. \$85.00

Other Accessories

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- MFJ-202 Antenna Noise Bridge, wide range 0-250 Ohms, 150 pF Xcc, 1-100MHz. \$85.00
- MFJ-102B Ext. 10-30MHz Preamp, 25dB gain. \$63.00

-ANNOUNCEMENT-
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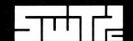
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PBM 18/70 18 el, 70 cm, 14.9 dBd, 2.8 m — \$96.00
MBM 48/70 48el, 70 cm, 15.7 dBd, 1.83 m — \$83.00
MBM 88/70 88el, 70cm, 18.5 dBd, 3.98 m — \$105.00
PMH/2C Phasing harness — \$20.00
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Nagara

SS56 6 m 5el beam 1 KW — \$159.00
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- 6B6 Final — \$3.75
- 6C46 Final — \$12.00

CG Finals

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- TS5205 YG3895 Kenwood — \$57.00
- TS8205 YG88C Kenwood — \$59.00

Kenwood Morse Keys

- HK702 Deluxe Key with marble base — \$41.00
- HK708 Economy Key — \$23.00
- HK706 Operator's Key — \$25.00
- MK701 Manipulator (side-swept) — \$45.00
- PALOMAR 1 C Keyer — \$145.00

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- VD-2 Twin meters 3-150 MHz with cal. chart — \$35.00
- SWR200 Osterblock 3-200 MHz, 2/20/200/2000W — \$66.00
- SW210A Dawa 1.8 thru 150 MHz, 20/120 W direct — \$99.00
- SW410A Dawa 140-500 MHz, direct reading — \$129.00
- CN620 Dawa Cross-needle, 15-150 MHz, direct — \$99.00
- CN630 Dawa 140-450 MHz, 20/200 W, direct reading — \$135.00
- CN650 Dawa 1.2 — 2.5 GHz, 2/20 W, direct reading — \$169.00
- LPM-885 Leader SWR/PWR meter — \$89.00
- LPM-880 RF Power Meter — \$135.00
- RW-1550 Kuranishi RF Power Meter — \$185.00
- RW-1510 Kuranishi RF Power Meter — \$165.00
- RW-1002L Kuranishi RF watt meter — \$139.00

Kenwood Transceivers

- TS-520S P.O.A.
- TS-820S P.O.A.
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- TS-120S P.O.A.

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Coastal Change-Over Relays (Daiwa)

- CR-2L 1.8 thru 170 MHz, 100 W pep max — \$45.00
- CR-2H 1.8 thru 450 MHz, 200 W pep max — \$65.00

Jaybeam Antennas

- 5Y/2m Set 2 m, 7.8 dbd gain, length 1.6 m — \$43.00
- 8Y/2m Set 2 m, 9.5 dbd gain, length 2.6 m — \$51.00
- 10Y/2m 10e1 2 m, 11.4 dbd gain, length 4.4 m — \$84.00
- 10X/2m 10e1 2 m, cross yagi, 11.3 dbd — \$114.00
- Db-70cm Twin Set, 70 cm, 12.3 dbd, 1.1m — \$64.00
- PBM 18/70 18e1, 70 cm, 14.9 dbd, 2.8 m — \$66.00
- MMB 48/70 48e1, 70 cm, 15.7 dbd, 1.83 m — \$83.00
- MMB 58/70 58e1, 70 cm, 18.5 dbd, 3.98 m — \$105.00
- PMH/2C Phasing Harness — \$39.00
- 8XV/2M 2 m cross yagi, Ref. 9.5 dbd, 2.8 m — \$96.00
- 12XV/70 70 cm cross yagi, 12e1, 13.0 dbd, 2.6 m — \$139.00

Parabolic Dishes

- PBA-1200 70 cm and 1.2 GHz complete — \$349.00

Rak Antennas

- AL240XN 20-40 m trap dipole — \$70.00
- A4VPN 40 m dipole kit — \$27.00
- L1STENR 3 Short wave Rx antenna — \$49.00
- L1STENR 1 Short wave Rx antenna — \$22.00

Nagara

- SS56 6 m 5 el beam 1 KW — \$159.00
- V5JR 80-10 m trap vertical, 6.7 m high — \$129.00
- V4JR 40-10 m trap vertical, 5.2 m high — \$99.00

Hy-Gain Antennas

- HYQUAD 10/15/20 m, 2 element quad — \$279.00
- 20dB 4 el monobander for 20 m — \$259.00
- THEDOX 6 el tribander — \$310.00
- TH3MK3 10/15/20 m 3 el beam — \$249.00
- TH3JR 10/15/20 m 3 el beam — \$229.00
- 20B3A 3 el beam 20 m — \$199.00
- LONG JOHN 5 el wide spaced 27/28 MHz — \$180.00

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SHURE H.H. \$36
MOBILE
MATCHBOX \$35
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4 Kw 4.1 \$195
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METERS \$245.00
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CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800

November:
17/18 ARRL PHONE SWEEPSTAKES
24/25 CQ WW DX CW CONTEST

December:
1/3 CONNECTICUT QSO PARTY
8/9 AUSTRALIAN NOVICE CONTEST
15/ ROSS HULL VHF/UHF MEMORIAL
15/13 Jan. ROSS HULL VHF/UHF MEMORIAL
CONTEST

Note that the Australian Novice Contest replaces the previous contests organised by the Westlakes Radio Club.

One recommendation in my last annual report to the Federal Conference was that the Ross Hull Contest be disbanded in its present form due to the lack of interest in submitting logs. To me it is a waste of my time and a waste of valuable space in the magazine organising a contest which results in less than ten logs being sent in. A recent Rumanian contest had a good idea. If the other chap didn't send in a log you could not claim a contact with him for scoring purposes. If entries are not well up this year I will seriously consider a similar rule next year. This year's Ross Hull contest is the final one for the Contest Champion Trophy for 1979.

ROSS HULL VHF/UHF MEMORIAL CONTEST 1979-1980

Firstly some details about the man whose name and achievements we honour with this annual contest.

Ross Hull, born in Melbourne in 1902, studied to be an architect. By 1922 he had become one of Australia's outstanding amateurs and in 1926 with the call OASJU, was secretary of the WIA.

In the same year he went to America and asked for a job in the editorial department of the ARRL, and soon rose to the position of assistant technical editor of "QST". In 1929 he became the logical choice for director of the ARRL programme for special technical development to devise new apparatus. It was from this appointment that the real ability and genius of Ross Hull was to emerge and give brilliant success to the programme. Some of his new innovations included "Bandspreading" of amateur receivers, the first serious use of the Superheterodyne for the reception of amateur phone transmissions, the first presentation in amateur radio of 100 per cent modulation, the use of Linear Amplifiers and the introduction of the Signal Monitor.

Ross Hull had a flair for unorthodox construction techniques. He put his valves upside down to shorten leads and rejected the "Breadboard" in favour of a bent metal chassis. He always set the pace in apparatus design only to be excelled by his own rigid and beautiful construction.

In 1929 he returned to Australia to become editor of "Wireless Weekly" for 18 months until he was attracted back to ARRL as Associate Editor. He became the mainspring of the "QST" editorial staff.

He popularised 56 MHz for local contacts and conducted long term research into UHF propagation and for the first time established the reason for the bending of these waves in the lower atmosphere.

With his activities, his amateur radio, his piano, his camera, his workshop and his cottage on a Connecticut hilltop he was leading the world in amateur radio. However, it was in 1938 that a power supply for his television receiver caused his untimely death. A power supply giving 6,000 volts for a large kinescope. His advice was "Switch to Safety", and a great man met instantaneous death doing something which he had taught the world not to do.

So with the annual Ross Hull Memorial Contest we honour this amateur who did so much to steer the following generations of amateurs along the sound technical road we know today. A perpetual

trophy is awarded annually for competition between members of the WIA. The winner's name is inscribed on the trophy and he receives a suitable certificate.

OBJECTS

Amateurs in Australia and its territories will endeavour to contact as many other amateurs as possible under the following conditions.

CONTEST PERIOD

001Z on 15 December 1979, to 2400Z on 13 January 1980.

BANDS

All amateur bands above 30 MHz may be used. No crossband operation is allowed. Operation via active repeaters and translators is not allowed.

EXCHANGE

RS(T) plus a three figure serial number. The first number may be any number between 001 and 999 and will be increased by one for each contact, when 999 is reached a start is made from 001.

RESTRICTIONS

Multi-operator stations are not allowed: Only one transmission at a time for all stations: Two contacts per day per band with each station irrespective of mode, providing two hours have elapsed since the previous contact. Entrants must operate within the terms of their licence.

DURATION

Any seven GMT days within the contest period, not necessarily consecutive.

SUMMARY OF LOG SHEET

A front sheet must be attached showing the following information in this order:

Name, Address, Section, Call Sign, 7 Day Score, Operating Days, Best 48 Hour Score, Operating Period.

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest. _____ Signature.

LOG SHEET

It is desirable that complete logs for the whole contest be submitted for cross checking purposes, photo copies are preferable.

The log must show the following information:

Time GMT, Band, Emission, SIn Worked, Tx exchange, Rx exchange, Points, Bonus. Each page should be individually totalled for points at the bottom.

SCORING

Scoring will be based on the following table:

	52	144	432	576	1296	up
Less than 200 km	2	2	5	10	20	
More than 200 km,						
Same Call Area	5	5	15	25	50	
More than 200 km,						
Other Call Areas	10	10	25	50	100	

BONUS POINTS

Each new call area contacted, 20 points, once only per band per GMT day, including own call area.

ENTRY CLASSIFICATIONS

- Transmitting Phone (AM, FM, SSB, ATV, SSTV).
- Transmitting CW (CW, RTTY).
- Receiving (any modes).

AWARDS

The entrant with the highest score in either section (a) or (b) will be the winner and his division will hold the trophy for one year.

Certificates will be awarded to the highest score in each section and in the case of (a) and (b) to the highest score in both the seven day and the 48 hour divisions. A winner of a seven day certificate cannot be awarded a 48 hour certificate as well. Certificates will not be awarded on a call area basis unless there are more than 10 logs received for that section.

SUBMISSION OF LOGS

Entries are to be sent to the FCM, Box 1065, Orange 2800, postmarked no later than 4th February, 1980, and endorsed "Ross Hull Memorial Contest".

SPECIAL RULES FOR RECEIVING SECTION (c)
SWLs only may enter this section.

YOU and DX

Mike Bazley VK6HD

8 James Road, Kalamunda W.A. 6076

DX NEWS FROM THE CQDX CLUB

Paul VK3VOP worked JT0LJL on 15-6-79 at around 0810 GMT on 21.185 MHz. The JT was in QSO with a UA0 and the JT went QRX to answer the phone. Paul called and told the Russians how much he would like to work the JT. The Soviet operator said "Don't we all!", but put him on to the JT anyway. The JT's QTH was Ulan Bator.

Good DXing . . . it proves once again that it pays to listen.

Peter VK3NNY has now worked over 150 countries and has the greatest number in the club. Five of us have now worked over 100 countries and it appears that Peter may be the first Novice to get the DXCC on CW alone. Any comments—From Trevor VK3NNR.

LONELY OUTPOST

The site of the Okino-Torishima DXpedition in mid-June. Due to dangerous conditions the operation was limited to only four days. See report in September AR, page 37.

BOTSWANA CALL SIGNS

Barnes, R. G., A/P Bag 250, Gaborone, A22AI.
Broome, E. C., C/o Box 173, Francistown, A22AJ.
Broome, N. M., C/o Box 173, Francistown, A22AN.
Bushe, D. W., Box 604, Gaborone, A22AB.
Deligen, M. P., Box 1054, Gaborone, A22MD.
Ewels, C. E., Box 601, Gaborone, A22AH.
Falor, A. P., Box 601, Gaborone, A22RA.
Gant, J. A., Box 80, Gaborone, A22GJ.
Hornstead, J. C., C/o Box 504, Gaborone, A22AR.
Harris, D. W., Private Bag 0060, Gaborone, A22BX.
Hosang, H. D., P/Bag 60, Gaborone, A22VZ.
Isaacs, J. H., Box 516, Gaborone, A22JH.
Kanika, B., P/Bag 2, Molepolole, A22BT.
Kierstead, H. R., Box 10, Kasane, A22RK.
Lange, A., C/o Box 315, Gaborone, A22PO.
Lalietang, P. T., Box 91, Francistown, A22TL.
Makaya, Dr. G., UBS, P/Bag 22, Gaborone, A22AS.
Morris, S. A., Box 516, Gaborone, A22SM.
Patterson, D. K., C/o Moeding College, P/Bag 11, Lobatse, A22DK.
Ramachandran, S., Box 947, Gaborone, A22SR.
Ramachandran, D., Box 947, Gaborone, A22DN.
Schmidke, L., Box 501, Francistown, A22BW.
Sjölund, E. A., Swedish Embassy, Box 17, Gaborone, A22GD.

Strauss, R. J. W., Box 35461, Northcliff, 2115, RSA, A22PS.

Thompson, E. P., Box 1390, Gaborone, A22ED.
Walker, C. D., Box 84, Selebi-Phikwe, A22DW.

Sulu, G. V., Box 516, Gaborone, A22GV.
Sulu, A. V. (Mrs.), Box 516, Gaborone, A22GW.

NOTE
Prefix now A22 instead of A2C since 2nd September, 1979.

Join the IW net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

BOOK REVIEW

500 QUESTIONS FOR ACPD CANDIDATES
BY NEW WA YRS Education Service.

Another excellent book for the aspiring amateur from the dedicated group in New South Wales. A definite must for any candidate for the ACPD.

With the shift to multi-choice examinations the aspiring candidate no longer can gain practice by answering old exam papers. In order to fill this gap this book has been prepared.

It is still too early to know whether the standard of the exam is exactly the same as this book and

the syllabus, however the book is extremely close both to the syllabus and to the standard of those sample questions which have been released.

A most useful book for the aspiring candidate. Once P. and T. have a similar and larger book of questions, "Instant" exams over the counter with "Instant" call sign issue would be quite practical. If the FCC can do it in the USA why not P. and T. in Australia?

Available from NSW WIA YRS.
VK3AUJ.

MOST OFTEN ASKED QUESTIONS AND ANSWERS ABOUT AMATEUR RADIO

By Leo G. Sands and Joseph L. Lynch. Published by Hayden Book Co.

This is an introductory book for someone just getting into amateur radio and progressing toward a licence.

Much of the information is of necessity only directly applicable in the USA, however there is general information and theory which is the same everywhere.

The treatment is of necessity fairly shallow as it is not possible to cram an encyclopedia into 112 pages.

Available through Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUJ.

MODERN CB RADIO SERVICES

By Marvin Hobbs. Published by Hayden Book Co.

A wide ranging treatment of the service of CB radio equipment covering both the units and the installation of them. Also included are details of various items of test equipment and the treatment of mobile Morse.

Whilst some specific equipment is shown, it is used to demonstrate typical arrangements. Frequency generation plans and layouts. This is necessary due to the multiplicity of equipment types available.

General service philosophy is handled, together with various fault finding plans designed to quickly localise faults. This is no doubt a reflection both of the cost of labour and the cheapness of many CB sets.

With the availability of CB radio and their popularity for conversions to 10 metres and 6 metres the general explanation of techniques used and the frequency generation plans in use would be most valuable.

Available for \$8.50 through Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUJ.

A GUIDE TO AMATEUR RADIO—17th EDITION

By Pat Hawker G3VA. Published by Newnes-Butterworths.

This book is aimed at the budding amateur or recently qualified amateur. It presents a mixture of amateur radio information, theory, and constructional information in the manner familiar to anyone who has read the RSGB publications.

Some of the licensing information is applicable only in the United Kingdom. However, this is similar to the local requirements and does provide you with some insight into the licensing structure in England.

The list of CW abbreviations would be welcome to many budding amateurs who may otherwise doubt their ability to copy code when the first string of abbreviations returns. These are a fairly essential part of CW operating and can easily throw the newcomer.

Another interesting feature is a listing of many rigs. Whilst some are of UK origin, by far the majority are also types which have been sold locally. Quite useful when trying to work out what the gear in the Hamad is.

An interesting and informative book bound in a durable hard cover, which accounts for the price of \$14.50.

Available from Butterworths, 586 Pacific Highway, Chatswood, NSW, or your favourite book shop.

VK3AUJ.

Logs must show the same information as a transmitting log except for the second number exchange. If both stations are heard both can be claimed but on separate lines of the log.

Scoring will be as for transmitting stations.

Any scoring contacts can be logged, there is no limit to the number of times that one station can be logged.

There is only one division in this section, that is for a duration of any seven GMT days, not necessarily consecutive.

The decision of the FCM is final and no correspondence will be entered into.

AUSTRALIAN NOVICE CONTEST RULES

The contest will take place from 0800 GMT 8th to 0759 9th December, 1979, for all novice and full call amateurs.

OBJECTS OF THE CONTEST

To encourage contest working between amateur stations in Australia, New Zealand and Papua-New Guinea during a 24 hour period, with special emphasis on contacts with novice and radio club stations.

STATIONS ELIGIBLE

Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or enter a log. Except for radio clubs, no multi-operator working is allowed. Stations in your own call area as well as other call areas may be worked.

CONTEST BANDS

Only the novice allocations on 80, 15 and 10 metres may be used. This applies to full call stations as well. No crossband operation is allowed. Contacts should be Phone or CW.

SCORING—TRANSMITTING

For contacts with a novice station, 5 points.
For contacts with a radio club station, 10 points.
For contacts with a full call station, 2 points.

SCORING—LISTENING

Novice/Novice contact, 5 points.
Full Call/Novice, 2 points.
Novice/Full Call, 2 points.
Full Call/Full Call, 2 points.
Any contact with a radio club, 10 points.

CALLING PROCEDURE

Phone call "CQ Novice Contest" and on CW call "CON". Stations may be worked only once per mode per band.

EXCHANGES

Phone, RS report plus three figures. These three figures may start anywhere between 001 and 999, but when 999 is reached you must start again at 001. CW, RST report plus three figures on the previous basis. Radio club stations will add the letter "C" after the number above.

CONTEST SECTIONS

- (a) Novice/Full Call Phone.
- (b) Novice/Full Call CW.
- (c) Listeners.

LOGS

Logs must show GMT time, station worked, band, mode, NR sent, NR received, score claimed and score tally for each page.

A front sheet must be attached showing the following: Name of Operator, Call Sign, Address, Section Entered and Points Claimed.

Logs are to be sent to the Federal Contest Manager, Box 1065, Orange 2800, and must be postmarked no later than 23rd December, 1979.

CERTIFICATES

Certificates will be awarded to the highest score from Novice Phone, Novice CW, Radio Club Phone, Radio Club CW, Full Call Phone, Full Call CW, Listener Phone and Listener CW.

A trophy to be known as "The Keith Howard VK2AK Trophy" will be awarded to the entrant with the highest aggregate score in the (a) and (b) sections and will be held by the winner for a period of twelve months.

The decision of the Federal Contest Manager is final and no correspondence will be entered into regarding such decision.

AWARDS

COLUMN

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, S.A. 5025

TEN-TEN CHAPTER AWARDS

Several of these awards are available from VK and overseas countries and are only issued to hams who have 10X membership for contacts on the 10 metre band.

The 10X organisation was formed for the specific purpose of promoting more and continued activity on the 10 metre band. To qualify for 10X awards, log details only are required and a point scoring system usually applies.

For further information I suggest you ask any of the 10X members and I thank Bill VK5WV for explaining the system to me and showing me a selection of 10X awards that are available.

Here are the details of a 10X award available from the Festival City Chapter of the 10X International net which was formed in Adelaide, SA, in May 1979.

VKS FESTIVAL CITY AWARD

This award is available for working 10X Chapter members in the city of Adelaide, SA.

NET TIME AND FREQUENCY

Sunday (Aust.) on 28540 kHz at 0030Z.

AWARDS

Basic Award — 10 points, fee \$2 Aust. airmail.
Senior Seal — must work 1 Ch. — 50 points, fee SAE plus 2 IRCs or \$0.50 in Aust. mint stamps.
Century Seal — must work 2 Ch. — 100 points, fee SAE plus 2 IRCs or \$0.50 in mint Aust. stamps.
VIP Award — to be announced at a later date.

Senior Seal is 2 points, Century Seal is 3 points and VIP is worth 4 points. Overseas stations may apply for Senior and Century Seals together, for \$1 Australian, and VIP Award applicants must hold Senior and Century Seals.

VALUES

Charter member — Ch., 5 points.
Charter member — CH, 5 points.
First State — FS, 3 points.
Other members — A, 1 point.
Chapter member — C.

Chapter membership is available for \$2 Aust., is permanent, and is worth an additional point.

First Festival City Chapter award issued to each VE, W, VK or JA prefecture or similar call areas in other countries.

Applications must show the date, time, call sign, QTH, name, Ten-X No. and FC No.

AWARD NUMBERING SYSTEM

1 to 100 — Charter Members.
101 and upward — First State.
101C and upwards — Charter Members.
251 and upwards — Member.

DESCRIPTION

The certificate measures 265 mm x 205 mm, printed in red on high quality white card.

Applications should be submitted to the Awards Manager, Bill Vogel VK5WV, 16 Wandilla Street, Largs North, SA 5016, Australia.

BLACK MARLIN AWARD

This award is available to Australian and overseas hams for working members of the Cairns Amateur Radio Club. The award is also available to SWLs.

The award is called the "Black Marlin Award" because of the marlin sports fishing done in the waters around the Cairns area.

REQUIREMENTS

1. Work seven members of the Cairns Amateur Radio Club, or five members plus the Club station VK4HM.
2. Club members must be within 100 kilometres of Cairns; therefore contacts made with club members who are not within 100 km are not valid.
3. QSL cards are not necessary, just send log details.

Cairns: The Black Marlin Capital of the World

CAIRNS AMATEUR RADIO CLUB

Black Marlin Award

Certificate No. _____

This is to certify that Amateur Station _____


has satisfied this Committee that he has had two way communication with the following CAIRNS STATIONS:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Date: 20 AUGUST 1979

VK4YT
Club President

ShA VK4WV
Awards Manager



G.A.S. Print

The Black Marlin Award Certificate.

VKS Festival City Award

10 X CHAPTER

THIS IS TO CERTIFY THAT AMATEUR RADIO STATION _____

OPERATOR _____

HAS COMPLETED REQUIREMENTS FOR THIS AWARD

CERTIFICATE NUMBER _____

DATE _____



AWARDS MANAGER _____

ADELAIDE FESTIVAL CENTRE

SOUTH AUSTRALIA

The Festival City Award Certificate.

4. Cost is three IRCs or equivalent for Australian stations (\$1) or five IRCs or equivalent for overseas stations.
 5. Endorsements may be claimed for "All CW", "All SSB", etc.
- Applications should be submitted to the Awards Manager, Cairns Amateur Radio Club, PO Box 1426, Cairns, Qld. 4870, Australia.

DESCRIPTION

The award measures 255 mm x 200 mm, printed in three colours on high quality paper. The club name is in red, border in dark blue and logo in black.

DXCC NOTES

DESECHED IS. KP4AM/D

Credit for this location is now approved. All

operations before 1st March, 1979, will not be accepted, only operations on or after that date.

CANAL ZONE KZS

Under a treaty executed between Panama and the USA in 1977, this piece of real estate reverted back to the administration of Panama (HP) on 1st October, 1979. Therefore KZS became a deleted country on that date. The KZS QSL Bureau will remain in business for a further two years to clear all outstanding QSLs. All DXCC tallies are being progressively amended. Therefore the current total of "active" DXCC countries remains at 319.

VENDA-LAND

This area obtained self-government from the Republic of South Africa on 13th September, 1975, and several DXpeditions operated from Venda during the "independence" celebrations using the prefix T4. Contacts were made with T4A by several Australian stations and I also worked T4VEN. However, this country comes into the same category as HS and SB and is not recognised for DXCC.

CORRECTIONS

The following corrections should be made to the listings of new DXCC members shown in September 1979 AR. Under "phone", Certificate No. 174 was issued to VK6VM. Under "CW", delete VK3DY. Certificate No. 103 was issued to VK6PY.

ISN'T ANYTHING SACRED?

I consider it a duty to report to all DXCC aspirants a recent unique experience for your Awards Manager. During September I had the privilege of issuing DXCC Nos. 190 and 191 to a husband and wife team—Christine and Mick Bentley VK4ABM and VK4AMB. I offer my congratulations on a particularly commendable effort by two comparatively recent licensees.

This achievement must surely be of special significance because I am not aware of any other OM or YLs who share, to such an extreme, a common interest in ham radio.

I am somewhat disturbed that this may herald a trend in ham radio that may worry some of my fellow MSPs.

I must admit that there are some advantages in cultivating such an interest in the VK5VW ham shack, but I am not altogether convinced that the advantages would outweigh the disadvantages.

Good hunting.

QSP

LETTERS TO THE EDITOR

The following is an extract from a letter written by a J.P. to the President of the WIA, Queensland Division, and forwarded by him to the Postal and Telecommunications Department, strongly supporting objections to traffic of this nature on air via amateur radio. The objections have also received strong support in a letter to the Department from the WIA Executive requesting an end to the alleged contraventions.

"But for weeks, in fact months now, I have been monitoring a session—emanating basically from VS but VK stations do participate. It is called 'Rendezvous Group', in actual fact run by Jehovah's Witness Organisation on 28.57 z, starts about 8.30 a.m. local time. I mentioned it to one of the RIs in Rocky (Mike Buffin) and he requested a tape of it—which I duly forwarded. Unfortunately Mike was transferred recently, so I don't know the outcome. VK8 is the main station, but VK6, VK2, VK4, VK3 all participate. I am pretty tolerant I think with 'stretching the regulations', but this flagrant abuse gets me hopping mad. I guess some would think I was out for a purge, BUT I know of no other religious organisation who uses amateur radio to further their cause. But in my 'book' Regulations 79, 80, etc. (of Chapter 6 of 1967 issue of the Regulations), is being abused. I would object to anyone else who used this medium to further their aims, believe you me."

(Sgd.) J.P. VK4.

ERRATA

In the October issue the name and call sign of the first letter to the Editor was accidentally omitted. He was John Locke VK3ZWL.

DIVISIONAL NOTES

VK3

ALARA

The Australian Ladies' Amateur Radio Association (ALARA) will be holding its Annual General Meeting on 24th November, 1979, at the home of Heather Mitchell VK3AZU at 2.30 p.m. For further information please write to ALARA, Box 110, Blackburn 3130, or contact the WIA offices.

VK3BWI BROADCASTERS

PETER MITCHELL VK3ANX

Peter is the current broadcast committee chairman. He obtained his full call in October 1976 and joined the group in June 1978. Peter joined in response to a call for volunteers to help run the station. He now actively repairs and adjusts the station equipment and keeps the team of announcers on deck with the announcers' roster. (A real battle on Sunday mornings!)



Peter repairs and adjusts the equipment on Saturday afternoon. This is the only suitable time for him to gain access to the station. Consequently he is pressed for time and as such does an excellent job. As a result of his efforts the station runs very well.

Peter says that the main function of the broadcasts is to reach all amateur operators. However, propagation of the radio waves is not always favourable. The function of the broadcast committee is to present the news, not collect it. The broadcasts are a medium for presenting news from all quarters for amateurs. It is up to the interested parties to get their news in to the broadcast group. Peter is making a worthwhile contribution to the WIA by helping to run the museum station.

Peter's other interests are: DX on HF, sewerage maintenance engineer with the Melbourne Board of Works.



NEIL MUSCATT VK3BCU

Neil joined the team of announcers in January 1977. He received his licence about 10 years ago. He finds the broadcasts both interesting and as an opportunity to keep contact with amateur radio; although not heavily involved. He finds it an enjoyable way to socialise and it fills in time on a Sunday morning. He likes a newsy programme.

Neil's other interests are: Technician with Telecom, squash, ballroom dancing, photography, ATV.

VK2

ST. GEORGE'S AMATEUR RADIO SOCIETY

The Society will hold its November meeting and all future meetings at the Scout Hall in James Street, Blakehurst.

The first Wednesday of each month and a starting time of 1930 hrs EST still remains unchanged.

The Channel 1 repeater VK2RDX, which was recently vandalised, is well on the way to being re-installed at Mt. Bindo, and many thanks for this go to the people who kindly offered donations to our rebuilding fund, and also to the many amateurs in the Oberon, Bathurst, area who have taken a large share of the physical rebuilding of the tower and the safe keeping of the repeater unit.

VK4—RTTY

The Townsville Amateur Radio Clubs presented the fourth biennial North Queensland Convention at the Townsville College of Advanced Education on 14th to 16th September.

About 100 delegates, mainly from North Queensland and as far as VK3 attended.

Friday evening was quite informal with many of the visitors having a conducted tour of our civic theatre.

Saturday was a non-stop programme, with fox hunts, hidden transmitters, films, home brew competitions, technical seminars, visit to the James Cook University Physics Department, fashion parade and craft demonstrations.

Our official station, VK4WIT, was on air for the whole period, both on phone and RTTY (RTTY equipment which belongs to VK4AM, who used VK4WIT call sign. As well we featured SSTV.

We were honoured to have the State President of WIA (John Aarss VK4QA) with us, to talk to us on WIA matters.

Our social evening on Saturday was a great success and a collection was made for WARC 79.

Sunday saw the WIA news broadcast and call-backs from VK4 Division and VK2TTY, fun events and forum discussion items, auction, lecture, and inspection of technical sites (which included the RAAF log periodical situated at the Bohle transmitting station). Amateur Radio was given a great boost by the Convention, with favourable publicity on radio, TV and press.

VK4

The Ipswich and District Radio Club will be host to the 1979 Wireless Institute of Australia Queensland Division Convention to be held on the 17th and 18th of November, 1979.

The venue for the Convention is the Ipswich Showgrounds, where a diversity of activities will be available. In addition to the usual Convention attractions, the weekly trotting meeting is held on the Saturday and, on Sunday, flea markets and auctions present a popular diversion for the families.

There will be competitions, technical seminars, "Swap Shop", equipment auctions and films, and demonstrations, for both the OM and the YL. The ladies will be entertained by the Mayores and her committee, and a bus tour on the Saturday afternoon will be a journey back into history.

The semi-formal dinner dance on the Saturday evening will be held in a very pleasant informal atmosphere and will only cost a very reasonable \$10 a head, which includes registration for both days. The Convention will attract a registration fee of \$1.50 for either Saturday or Sunday or \$2.50 for both days.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

PO Box 84, Selebi-Phikwe, Botswana.
16 September, 1979.

The Editor,
Dear Sir,

This is a very long overdue note. When I first moved here in 1975 Peter Dodd wrote me and asked for an article for AR. This is to go some way to make amends.

Enclosed are the first three issues of the BARS newsletter and should be self-explanatory.

The latest information is that AZC is no longer and we now have the A22 prefix, with provision for using A24 for a Novice licensing scheme. The change took place at 0730 GMT on Sunday, 2 September — two weeks ago today.

As of today there are 11 licensed members and six associate members of BARS, with the list growing.

The main mover behind this has been Dave A22BX in Gaborone.

The most active amateurs in Botswana are Dave A22BX, in Gaborone, QSL via Radio Botswana; Larry (Lothar) A22BW, in Francistown, QSL via DK3KD; Don A22DK, in Ootse, QSL via VK3ATQ (I think); Chris A22DW, in Selebi-Phikwe, QSL via VK7CH.

Dave is ex G land and works as technical director in Radio Botswana. Larry is a Sermone Volunteer but in process of setting up his own business. Don is a teacher at a school and is ex VK3 in A22 land since 1978, and myself am an electrical engineer (power) for the copper-nickel mine here and been in S/P since March 1975.

Don has a regular sked with his brother (VK3) and I have a weekly sked with Chas (or Snow) VK7CH.

There is no bureau in Botswana and unlikely to be for quite a while, hence the reason for the QSL information.

Most activity in A22 land is on HF bands — local or 40 metre (very little on 80), but we are 40 with the tropical African BC stations so we suffer a lot of QRM — at night we have in Selebi-Phikwe anyway only about seven clear kHz spread over the bottom 100 or so kHz of 40!

The BARS have received the "Project Goodwill" receivers and some DARC 20m receivers, and these are being used with avid interest in both Gaborone and Ootse.

I'm the only amateur in Selebi-Phikwe, so we are a little cut off from the activity.

Recently Dave A22BX, with Pete A22PS and Grame Z55BMO, worked Oscar Mode J and became the first A22 to work Oscar.

Myself am gearing up for 6 metres and looking for the openings — have an FT620B and in process of building a 5/5 yagi set for 8. Am corresponding with VK3AQR, VK3ASQ and talking 6 on 10 metres with whom I can.

Work takes up 5½ days a week so only clear time on 10m on Sundays (very little on 80), and am usually on 10 metres before 0730 and after 0900Z.

Hope this short note and attached newsletters will be of interest to you, Bruce, or any of your contributing editors.

I will try and write an article or two for you before I leave A22 land next July.

Vy 73a Chris A22DW.

Chris Walker A22DW (VK7UX).

P.S.: AR still keeps me in touch with VK and is a very high class journal compared to Radio ZSI! I believe there is an article in the latest "QST" re A22 land!

The Editor,
Dear Sir,

Didius Julianus of Rome once said, "To be pedantic to one's own subjects is to exercise authority, but unto others it is the egocentricity of a buffoon".

This quote from a great man is more than suffice to describe the narrowness of Mr. Hunt's cerebral thoughts whilst scribbling his "International Correspondence" letter to the September issue of Amateur Radio. I wonder if your Japanese is as good as their English. The spelling of the "Tokyo" letters appears to be in order, however some difficulty is apparent at their ability to achieve proper construction.

I suggest you hop off your soap-box and take a trip to anywhere but Victor Harbour and just maybe you will realise what an extremely difficult subject English is to a foreigner. I'm Irish; and we all know what linguistic experts we are!!

Yours humbly,

Robert J. McKibbin

The Editor,
Dear Sir,

THOSE QSLs

The perpetual problem of what to do with all those piles of QSL cards you have collected over the years.

After that elated feeling of receiving your first DX QSL, the next thing is how to cope with that continuous stream of incoming cards. The usual procedure is to pin all those exotic call signs on the wall behind the rig. When that area is taken up, the obvious move is to include the ceiling and the other three walls. From here on it is only a short step to the well tried "shoe box" treatment. Eventually, of course, those boxes can take up the entire floor space, when it then becomes necessary to consider the possible purchase of a "fork lift" to move the stacking problem as the never ending stream continues unabated. However, one system I experienced proved to be quite satisfactory and occurred when I held a pre-war New Guinea call sign. Due to the 1939 fracas, all those precious cards disappeared instantly along with the rig, the generator and the battery charger. It could be called the "instant disposal" method, although I could not recommend a repeat performance.

Of course we all like to preserve those cards, reminding us of some special QSO, like the time a chap in Alaska area said he had a 200 yards long rotary rhombic. Quite incredible, I thought. It turned out he was some research scientist recording the movements of a drifting ice-foil.

In those nostalgic pre-war days of the 6L6, 807 and those lovely blue-glowing 865s and when there were licensed hams in China with the prefix of XU2. Try it sometime on CW, it's really got a rock and roll swing to it.

With the present day craze of miniaturisation going on, it should soon be possible to have a 100 watts final in a matchbox. The day must surely be drawing near when all the QSL information is recorded on microfilm. The storage of vast numbers of QSLs will then be a thing of the past. By following today's business trends of cutting down on all avenues of overhead, it should be possible to produce a continuous roll of QSL cards similar to a perforated toilet roll. On completion of the day's QSOs, merely tear off the required number of QSLs for dispatch.

Seriously, there must be some bright spark in our midst who can come up with the ultimate answer to this problem of recording, storage and filing of that never ending stream.

R. B. Montrie VK5RB.

569 Inkerman Rd., Caulfield 3161
September 3rd, 1979

The Editor,
Dear Sir,

Having completed 10 weeks' stay in Australia I should like to express my gratitude and affection to the local boys whom I met on the air and in eyeball QSOs, through the pages of Amateur Radio. Thanks to active assistance of Bob VK3SK,

Dick VK3ADR and David VK3ADM, I was able to establish my own station here. Your authorities should be commended for the prompt issue of my licence and call.

I am returning now to my home country, Israel, with many good memories of warm and generous welcome in Australia. Should any VK need information and assistance in way of a reciprocal ham in Israel I'll be glad to help.

Dr. Oded E. Schremer 4X450/VK3BSV.

32 Dorset Street
Bursell 6280, WA
18th September, 1979

The Editor,
Dear Sir,

I wonder how many operators fell into the same trap that I did, and entered the recent Remembrance Day Contest without having first carefully studied the rules. Over many years, apart from some changes to the scoring system, the rules have remained unchanged and, without having heard or read anything to the contrary, one tends to assume that this will continue to be the case.

The first indication I had that anything had changed was when I found that some stations were giving only three-figure cyphers, without the RST report. There was obvious confusion, however, as perhaps half the stations gave three-figure cyphers and half included the RS numbers. I think that, without exception, the CW operators gave six-figure reports.

However, my big blunder was in entering the now non-existent Open Section, as I have done for many years, and including phone and CW contacts in the same log. It was not until I was compiling my points score that I noticed the change in rules, and the omission of the open section.

As I pointed out in a covering letter with my log, I feel that if no points are awarded this year for entries in an open section there will be some bitterly disappointed amateurs. I also pointed out that if the rules are strictly adhered to, any amateur who gave an RS or RST report in his cypher should be disqualified on the grounds that his cypher did not contain three numbers only.

I contacted 570 stations this year, for a claimed score of 2275, and I wish to protest most strongly at the omission of the Open Section. I am not interested in competing in PHONE ONLY or in CW ONLY, as I enjoy both modes of communication, and if one enters both phone AND CW sections, he cannot hope to make a comparable score in either section with an operator working a single section only.

What possible motive there can have been for omitting the open section or even changing the cypher section, I am at a loss to understand, and I sincerely trust that the Contest Committee will see fit to return to the old rules next year.

Yours sincerely,

E. F. Davies VK6ED.

The Editor,
Dear Sir,

I read with regret of the unfortunate accident and resulting disability of Don Pugh VK3DN (Amateur Radio September 1978, page 23). It was of great interest to me to read of the help which amateur radio provided during his time in hospital.

As previously mentioned in your journal, the Austin Hospital has had an amateur radio station, VK3AL, since 1970. It is again active after being off the air for two years. We have also been given a CB rig, and patients are encouraged to set up their own, although they rarely do so. I have for many years been promoting amateur radio as a hobby for severely disabled people and agree with Don that it would be of great benefit if more hospitals could be induced to having amateur radio stations. I would urge any of your readers who are in contact with connected with care or treatment of disabled persons, to promote amateur radio as an ideal hobby for them.

Dr. Gerald H. Ungar VK3AOJ,
Deputy Medical Director, Spinal Injuries Unit,
Austin Hospital.

AROUND THE TRADE

VALVES ON THE WAY OUT?

No more amateur transceivers with valves are likely to be produced, according to a director of an equipment distributor.

"Spare valves for old transceivers are becoming increasingly harder to obtain from overseas sources and many have been discontinued by the tube manufacturers. A good proportion of tubes are manufactured in Japan, mainly by Matsushita Electronics, and will be discontinued this calendar year with this company building up large inventories to supply orders for the next 3-4 years. During the peak production period, 5 million tubes rolled off the production lines every month, but this has now decreased to around 350,000 per month.

"At the moment there was no great problem in obtaining common tubes such as 6146B or 6J56C, but shortages are expected late 1980; prices may increase to cover the overhead of large inventories," he said.

While we are unable to verify the accuracy of this statement, there does seem little requirement for valves in new transceivers running up to 400W input.

Fortunately the future availability of premium quality replacement valves of types such as the 6146B looks quite good. Valves are immune to the effects of nuclear radiation unlike transistors. Several East European countries are producing many US and European valves types for military equipment. These valves may be purchased from Ammon, 69 Peter Street, Box Hill North, Victoria. Systems Reliability in South Melbourne, and CEMA also sell "hard to get" valves.

NEW LINEAR AMPLIFIER

Kenwood have announced the release of the TL-120 linear amplifier. Designed to lift the output of the TS-120V, it runs 160W in (typical) on 3.5 to 28 MHz.

Cooling is provided by a large heatsink and a thermostat controlled cooling fan. Automatic protection against high VSWR is provided. The ALC circuit is designed to reduce drive and prevent the distortion that occurs when the supply voltage falls; it also holds the power output constant if the supply rises above 14V.

Another useful feature is the positioning of the VSWR detector before the low-pass output filter. In the event of the band switch being set for the wrong frequency the PA transistors will not be damaged.

Harmonic output signals are typically 60 dB or more below the fundamental.

DX BEAM HEADING LIST

Ever wanted to know the exact beam heading from your location to any country in the world? Bint Services have available a computerised listing which also shows long and short path headings, and the distance in miles and kilometres on the short path.

There is also a separate listing for the American States, together with all of the above information.

All that is required to prepare a personalised listing is for you to provide your name, call sign, QTH, and longitude and latitude if known.

Cost of this comprehensive listing is \$47.50 plus \$0.50 post and packing. Further enquiries to Bint Services, PO Box 323, Cheltenham, Victoria 3192.

SWISS QUAD

GFS Electronic Imports of Mitcham, Victoria, have announced the release of some additions to the already well known range of "Swiss Quad" high performance phased quad antennas manufactured by THT, Japan, and imported/distributed in Australia by GFS.

The Swiss Quads are a "phased" type quad and offer considerable gain over antennas of similar

size. Originally designed by a Swiss Ham, HB9CV, their concept is to drive the reflector and radiator at the same time using phase differences to obtain more gain and better front-to-back ratio than conventional quads.

The Models SQ-10 and SQ-15, which have been available for some time, are for 10/11 and 15 metres respectively and have a forward gain of 12 dB and a front-to-back ratio of 20 dB.

New to this range are the SQ-61, SQ-22 and SQ-24. The SQ-61 is a single unit for six metres with a forward gain of 12 dB while the SQ-22 consists of two separate phased Swiss Quad units making an array with 15 dB gain. The new SQ-24 is an array that uses 4 Swiss Quad units and has an extremely high gain of 18 dB.

GFS expect the SQ-15 will sell for \$169, SQ-10 \$159, SQ-61 \$119, SQ-22 \$99, and SQ-24 \$219.

For complete specifications on the new Swiss Quad series contact GFS Electronic Imports, 15 McKean Road, Mitcham, Victoria 3132, phone (03) 873 3639.

NEW MFJ DUAL TUNABLE ACTIVE SSB/CW FILTER

GFS Electronic Imports of Mitcham, Victoria, have just announced the release in Australia of a new "Signal Enhancer", the MFJ-752 Dual Tunable Filter.



The MFJ-752 consists of two separate active filters that have both their BANDWIDTH and CENTRE FREQUENCY fully adjustable and either filter may be set up individually as PEAK, NOTCH, LOW PASS or HIGH PASS networks.

The bandwidths may be varied from 3000 Hz down to 40 Hz and using the Notch Mode, a signal may be notched to 70 dB.

A built-in switchable Noise Limiter and Trough CLIPPER are designed to remove unwanted background noise. Also a simulated stereo feature for CW lets your ears and brain reject QRM.

The MFJ-752 is easily installed. It connects to the output of a receiver or transceiver and drives a speaker with up to 2 watts from its built-in audio stage. It may be powered from a 9-18 volt DC power source.

Price of the new MFJ-752 is \$139. For more information contact GFS Electronic Imports, 15 McKean Road, Mitcham, Victoria 3132, phone (03) 873 3639.

Tri-Kenwood (Australia) Pty. Ltd. have announced the release of their new general coverage Communications Receiver, the R-1000, capable of receiving transmissions in the range of 200 kHz to 30 MHz in thirty 1 MHz tunable ranges based on the Wadley Loop design principle.



Designed for the serious short wave listener, amateur operator or beginner, the receiver offers many features, including digital display for accurate tuning, digital clock with timer, tone control, stepped attenuator for reducing strong local signals, a recording outlet and carrying handle.

Availability will be late November and cost around \$498 (sales tax included).

For further information contact S. Brucemith, Tri-Kenwood (Australia) Pty. Ltd., 30 Whiting Street, Artarmon, NSW 2064, phone (02) 438 1277.

HAMADS

● Eight lines free to all WIA members.

\$9 per copy for non-members.

● Per copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.

● Reprints may be charged at full rates.

● Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.

● QTHR names address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Ken KP202 2m FM, hand-held, with all extras and extra channels, \$170; Ken KP12A RF speech processor, as new, \$110; 1976 AF 1976 AF 5/8 2m ant. with coax and connector, \$10; VK3OM, QTHR. Ph. (03) 562 9215.

IC211 All Mode Tcvr, IC225 FM Tcvr, vertical hustler, 4 BTV ant., 10m Swiss quad. Ph. (03) 240 1231, A.H. 509 8637.

Audio Tapes, 1800 ft. on 7 in. reels, brand new (no boxes), sell in lots of 20, \$45; photographic spotlights, 500 watt, retail around 9, sell for \$2.50 each sell in lots of 6 or more. Leon VK3ZN. Ph. (03) 557 6031.

ICOM 215, with Ch. 50, R2, R6, R7, had little use, in orig. carton, \$160. VK3BVM, QTHR.

Sale or Exchange — Kenwood TS520S, had little use, in orig. carton, part swap with cash balance for 10 MHz CRD or sell outright, any offers? VK2BVM, QTHR.

FTDX400/401, owner's ad talk power, commercial quality AF speech processor, as used successfully by VK3JF, VK2XC, complete unit ready to use, no wiring, internal battery or external supply, off switch transfers mic to Tx input, \$252.50 p.p.; FTD400, complete with mic, matching spkr, ext. VFO FV400S, speech processor, performance for DXing, \$550, plus freight. John VK3JF, QTHR. Ph. (03) 934 4417.

Collins KWM-2, round emblem with noise blanker, heavy duty PSB, control/speaker/watt meter, console type 312B-4, set of spare tubes, beautiful cond., \$1,790; Collins 755-3 Rx with noise blanker, 312B-3 speaker, SSB/CW/AM filters, spare tubes, \$825; set of solid state tubesters for 755-3, \$95; microwave modules 144 MHz transverter SSB/FM/AM/CW, 50 mW, 28 MHz, in 10W out, brand new, never used, \$150. VK2SV, QTHR. Ph. (065) 83 4414.

Union 2020, as new, modified Novice use, \$650, ONO. VK3NGS. Ph. (03) 791 2947 A.H.

Katsumi Mk. 1024 Pro. Electronic Keyer, as new \$150; Asahi mobile ant. system 80m-10m, incl. h/d spring and bumper mount, \$80; EA 2650 mini computer system, keyboard VBI, cassette interface, cabinet, 3K RAM, games pack cassette, 2500 software record, manual, complete and running, \$300, ONO. VK5NGD, QTHR. Ph. (085) 34 4057.

Kenwood Comm. Rx QR-666, 170 to 410 kHz, 525 kHz to 30 MHz, SSB, AM, only 10 hours use, still with original box, shipped free to anywhere in Australia, \$160. William Scott VK4XP, QTHR. Ph. (079) 76 1253.

Tricomm. Rx 9R-59DS, is as new cond., little used, operator's manual included, \$150, ONO. G. F. Hughes VK2ZNY, QTHR. Ph. (02) 60 3589.

Complete Station — Yaesu FR100B Rx, 80-10m, modes 60 Hz CW, USB/LSB, 2 kHz AM, 4 kHz AM filters, FM xtal calculator, VWO, plus auxiliary ranges 9.6-10.5 MHz, 12.5-13.6 MHz, 14.5-15.5 MHz, 26.5-27.6 MHz, plus FR100B matching spkr cabinet, plus Yaesu FL200B Tx, 200W PEP, CW, USB/LSB, AM, with transceiver with FR100B Rx, plus Shure cer. desk stat mic, plus matching linear, 1200W EIMAC 8875 final 80-10m, all patching leads, hand book and spare valves included, all have latest serial numbers issued for FR100/FL200, professionally operated and maintained to factory specifications since new, full price \$875, ONO. VK3ADM, QTHR. Ph. (03) 267 4688 Bus., (03)592 2168 A.H.

400W PEP Galaxy V Mk III, good order, clean cond., can be heard on the air any time, with P/S, 240V ext. VFO, CW filter, DC P/S, 12V, Aztec, and some spare valves, the lot \$425, ONO; Geloso TR222 Tx, all bands, including 160m (in 1m band modified to 160), good, clean, and in order, 65W AM, built-in P/S, 240V, good museum piece, \$75, VK4LH, QTHR. Ph. (071) 82 2678.

Multi-2m FM Tcxr, mlt. band, mobile bracket, 10W and 1W, rets. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52; this rig still as new in performance, some slight marks but generally clean; a bargain at \$155 (less than the cost of the xtals), B. Bathols VK3UV, QTHR. Ph. (03) 90 6424 A.H.

Three el. 10/11m Yagi beam, H/D, sliding elements, theory el. good cond., \$50, ONO. Kevin Cocks VK3NCP, QTHR. Ph. (051) 57 1492 A.H.

Trlo QG-402 and Trlo AG-202A S. Gen., with manuals, in exc. cond., cost \$290, sell for \$190, ONO. VK3YWP, Ph. (02) 626 4233 after 5 p.m. and ask for K. Blalock.

Kenwood TS-820S, CW filter, DC supply, etc., little use, as new, \$750; Icom IC-24S, SSB and FM, synth. mobile/home station, \$475; Icom IC-215, 3W portable with nicads, charger, flip antenna, \$225; also FRG-7 and Icom IC-701; all must go. A. Nutley VK2NA. Ph. (02) 230 5122/5678 Bus.

Yaesu FT75B with AC/DC supply, extra xtals fitted and slider to 20 kHz, immac. cond., \$450, ONO. W. H. Ross VK3UT, QTHR. Ph. (055) 69 2320.

Kenwood TS7400A, \$369; Datong agile audio filter, mod. FL 1120, RF spec. processor, Datong mod. RFC/M, \$75; above equipment as new. VK2MA, QTHR. Ph. (02) 48 5463.

KW "Viceroy Series II", 300W, SSB Tx, 80/10m, 240V PS and control box (all valves 6146 fitted), built in Rx mute and ant. change-over relay, VOX, MOX, CW and netting facilities, complete with xtal mic., connections, cables, circuits, block diagram, and installation, tuning and operating instructions, good cond., \$230. VK3VIR, QTHR. Ph. (03) 469 2245 A.H.

TH3JR with balun, new, never been used, still in box, \$120. VK3JH, QTHR.

Drake S8R1 Comm. Rx, 0.5 to 30 MHz, AC/DC, AM/SSB, very good cond., little use, best offer over \$175. VK1NBM, QTHR. Ph. (062) 81 6908.

Drake R4A Rx with full short wave HF band xtals, Drake noise blander, CW filters installed, Drake MS-4, spkr., owner's manuals, exc. cond., \$475; Drake TR4C SSB HF Tcxr, 300W PEP input, Drake RV-4C remote VFO, Drake AC-4 power supply, Drake MK-4 ant. matching network, with owner's manuals, and new Cushcraft ATV-4, 10-40cm vertical antenna, \$950, James VK2JO. Ph. (02) 36 7756 A.H., (02) 389 7786 Bus. GPO Box 5076, Sydney 2001.

Kenwood AT2000, as new, in carton, with hand, \$125. VK2ZKS/VBL, QTHR. Ph. (043) 96 4714.

Yaesu FT901 DM with SP901 speaker and YD148 desk mike, in mint cond., \$1,480; Yaesu FL2000B linear amplifier, 1.2 kW, excellent cond., \$460; Kenwood TS820, as new, excellent cond., \$1,000. ONO. VK3BIB, QTHR. Ph. (055) 65 8993 Bus.

100 T. Free Standing Tower, urgent sale, \$575, ONO; ex taxi use, will fit in a tandem trailer, already dismantled; Eddystone 750 Rx, 500 kHz-3 MHz, double conversion, unmodified, i.e. stock standard cond., \$150. G. Scott VK3ZR, QTHR. Ph. (03) 89 4645.

Hewlett Packard 970A Digital Multimeter with accessories and charger, \$220; G32 1956 1959 inclusive, \$8 per year. VK5MO, QTHR. Ph. (08) 339 2064.

866 Rectifiers, new in carton, \$8 each, plus postage. VK4SS, QTHR.

Kenwood TS820S, complete with digital readout, hand mic., SP250 speaker, modified for Novice power by distributor, \$795. VK3NDI, QTHR. Ph. (03) 786 1260.

Katsumi KM22/EK-127 Electronic Keyer, \$90; Hydrak VS22 15/10 trapped yagi, \$145; "TenTec" 544 transceiver, \$1,150; items offered as new, bought by my son who unfortunately never made the licence exam; some other items of amateur equipment, to complete my own station, would be considered in a part exchange agreement. Ralph VK5NRD, QTHR. Ph. (05) 46 6260.

WANTED

Command or similar WW2 Rx or components, particularly tuning gangs or coil boxes for student projects. Offers, prices, etc., to VK5RG, QTHR.

Smoothing capacitors for power supply, 2.5/3 kV rating, 4 uF or greater. VK5BU/1, QTHR.

FT221R 2m Tcxr in good cond.. Advise price and cost of J. Foster VK4CDX, PO Box 125, Mary Kathleen 4827, or Ph. (077) 47 2222 Bus., 47 2180 A.H.

External VFO Type 8010 to suit Uniden 2020 transceiver. Price and particulars to VK5SWV, QTHR. Ph. (081) 352 2051.

RF Sig. Gen., Marconi TF855 or similar, must have AM/FM modulation capability and calibrated output level down to 1 uV. W. Pickering VK4WP, 10 Marina Pde, Ingham 4850, Q. Ph. (077) 76 2008 A.H., (077) 76 2110 Bus.

Swan 410C or 420 External VFO. VK2AVT, QTHR. Ph. (02) 57 4325.

Yaesu FTV550 6m Transverter or similar. Price and details to Gary Hambling VK5AS, QTHR. Ph. (086) 82 2899 or Cowell 144 A.H.

Power Transformer, to give 1000V each side of centre-tap with at least 400 mA and not to have a greater height than 15 cm. VK3ACD, QTHR. Ph. (058) 21 2484.

Manual Circuit Diagram or similar information on Teletype Model 15, will purchase copyright or copy and return promptly. T. Robinson L31105, QTHR.

PRC16/16A Circuit Diagram and any other information to buy or photocopy; Teletype in writing cond., for \$50 to \$90. Phillip Re VK3BHR, QTHR. Ph. (054) 33 2204 A.H., (054) 43 1877 Bus.

TRADE HAMADS

QSL Cards, Log books, Contest Sheets — send 20c stamp for samples and prices to Linda Luther VK4VY, PO Box 498, Nambour, Qld. 4560.

OBITUARY

DON SORAGHAN VK2PU

It is with regret that we record the passing of Don VK2PU on August 10th, 1979; just the day before his 77th birthday.

Don was born in 1902 in Ireland and joined the Marconi Institute of Radio in Dublin. After graduating he joined the Marine section of Marconi Co. until joining AWA in 1921.

Travelling the seven seas, Don visited every port during the following 19 years of service in the Merchant Marine and was the Operator on board the first ship equipped with radio south of the equator.

In 1938 Don joined the Department of Civil Aviation and was with them until his retirement in 1962, attaining the post of Senior Communications Officer in Charge at the flying boat base in Rose Bay and later at Mascot Airport.

Although ill-health forced him to lead a limited life physically, he obtained the VK2 2m DX record in January of this year by working ZL3BFC, an event that Don had hoped many years for.

Apart from being the first person to send a Telex from Sydney to the USA, he was one of very few VK2s to work Hawaii and Tokyo via Oscar 7 Mode B. Another of his favourite subjects was the true Amateur spirit of experimenting (3 Ringos in phase?).

Don was a very active Amateur and his passing leaves a large gap, not only by his cheerful "Guardian of the repeater on the gateway to the Gold Coast", but also in the ranks of Nature's gentlemen, and especially from within the Gold Coast Radio Club, of which Don was an Honorary Life Member.

Martin Williams VK2ZIL.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. L. A. McPHERSON VK2AMK
Mr. I. BAILLIE VK2TN
Mr. A. K. MAYNARD VK4AG
ROBIN CLARK VK4CL (ex VK3BCL)

OBITUARY

PETER NORMAN VK5NPN

It was with deep regret that members of the South-East Radio Group learned of the tragic death of Peter (aged 22) and his XYL (of only eight weeks), Gail (aged 19), on June 15th, 1979. Result of car accident.

Peter had been an enthusiastic SWL before being licensed in 1976 and was one of the early novice stations to be heard on air. He was very active on 80, 15 and 10 metres and was frequently heard mobile and portable. Peter had applied to all for the August 1979 ACP. He was an example to Amateur Radio, enthusiastic about construction and experimenting.

Peter had a bright and cheerful approach to everyone and everything and will be sadly missed by all his amateur friends. To the families of Peter and Gail, amateurs extend their deepest sympathy.

T. R. Hutchesson VK5TH.

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be \$10 for 4 lines plus \$2 per line (or part thereof), minimum charge \$15, pre-payable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

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